Rock Products

With which is Incorporated **CEMENT and ENGINEERING NEWS** Founded 1896

Chicago, June 23, 1928 (Issued Every Other Week) Volume XXXI, No. 13

Gen'l.

Low-Cost Motors per Day and per Year

Wear-prevention is the big reason for anti-friction motors. Thrust loads and angular loads as well as radial loads tend to set up friction—*wear*. Timken Bearings take out all possible friction, no matter what the load-direction. Therefore Timken Bearings put in more endurance.

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Only Timken-equipped motors have all the advantages of Timken thrust-radial capacity, *plus* all possible anti-friction economies in lubricant and power. You specify motors of lowest cost per day and per year when you order every new motor equipped with Timken Tapered Roller Bearings.

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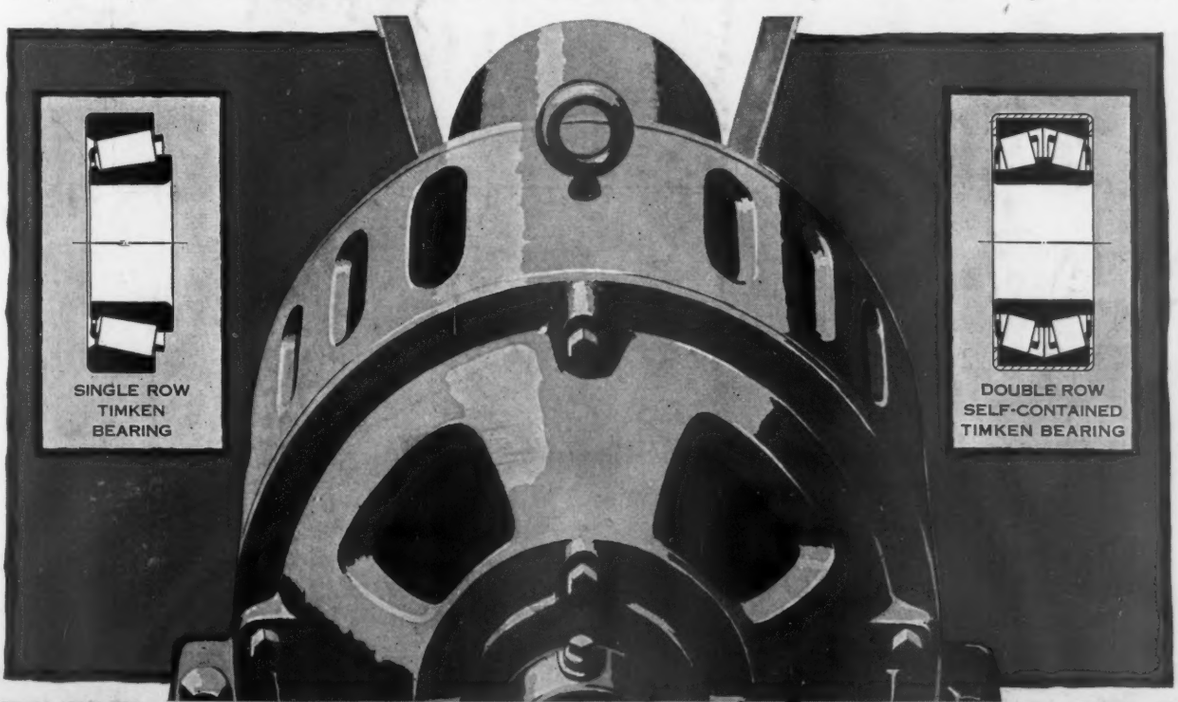

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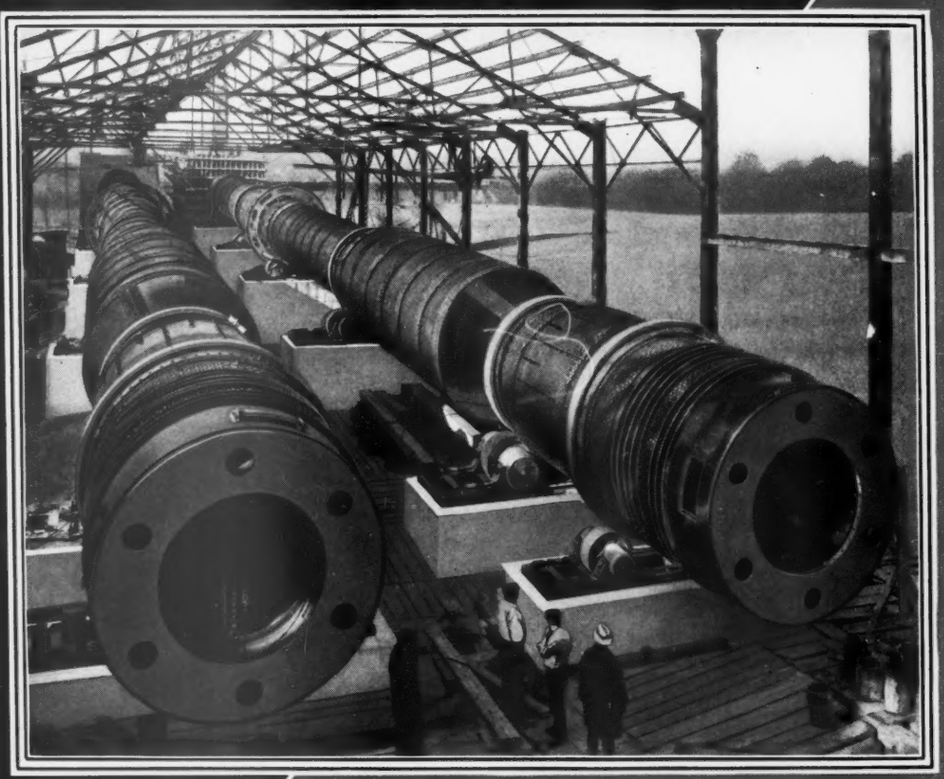

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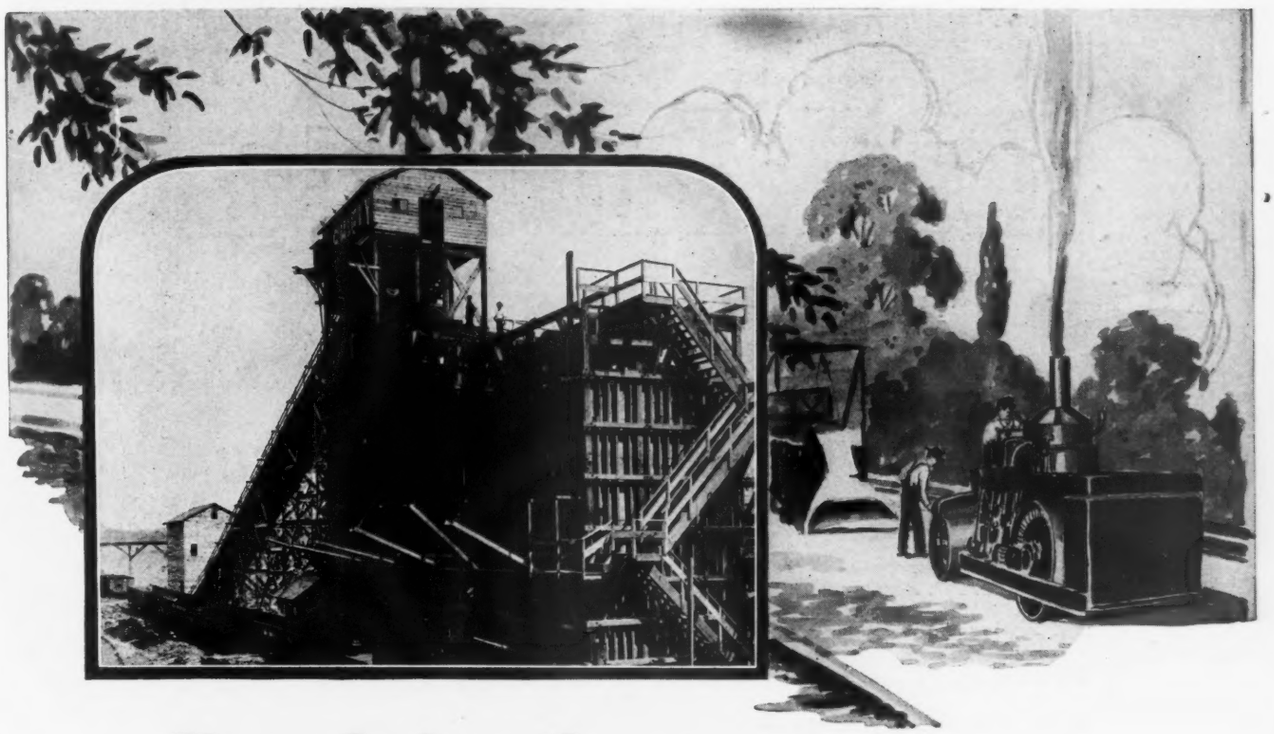

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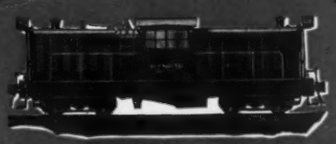
Plymouth Gasoline Locomotives in operation at plant of Raleigh Granite Company, Greystone, N. C.



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Plymouth Gasoline and Diesel Locomotives are built in a full range of sizes from 2 to 50 tons. Designed to reduce fuel and operating costs to a minimum.

4 PLYMOUTHS IN ACTION SAVING 30%

Raleigh Granite Company, of Raleigh, N. C. formerly used derricks but now find their Plymouth 8-ton Gasoline Locomotives effect a saving of 30 per cent.

Mr E. V Ragland, General Manager, on October 27, 1927, writes, "We now have four Plymouths in action and all are giving very satisfactory service."

The haul at their Greystone quarry is 1500 feet, with the steepest grade 3 per cent. They haul 5 to 7 cars loaded to 50 tons and bring in 1000 net tons of stone per day of 10 hours.

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Gasoline and Diesel Locomotives

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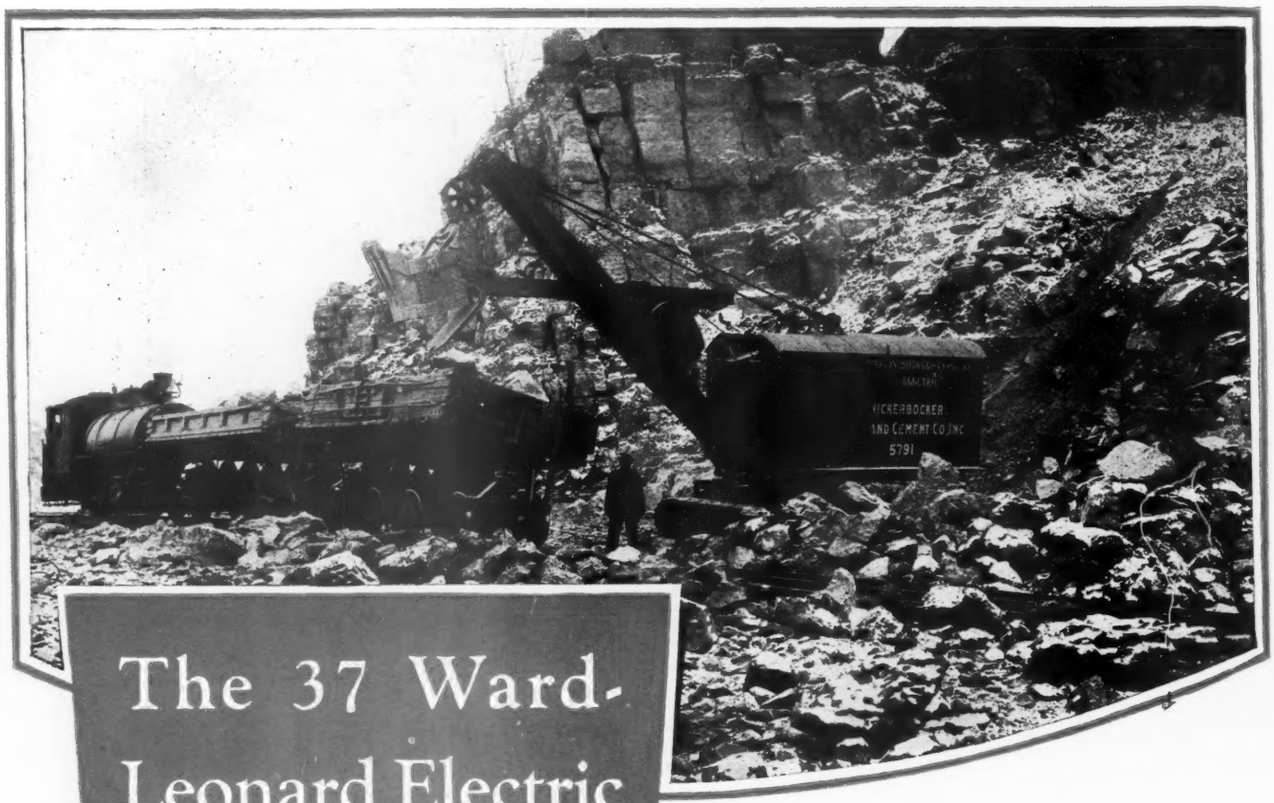

The 37 Ward-Leonard Electric is designed right — it is built right—it performs right

The Type 37 was the first 2-yard electric shovel built with Ward-Leonard control

SINCE the first Type 37 Ward-Leonard was placed in service two years ago, the machine has met with tremendous success. While there are many reasons contributing to its success, the following features are outstanding:

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2. Outside type boom for strength and safety.
3. Inside type dipper handle for flexibility.
4. Triple hitch for absorbing digging shocks and eliminating vibration.
5. Enclosed slip rings above the upper deck.
6. Separate generators for hoist, swing and crowd which definitely limit stalling torques.

There are many other reasons for the success of the 37 Ward-Leonard. Send for Bulletin 328 for further information.

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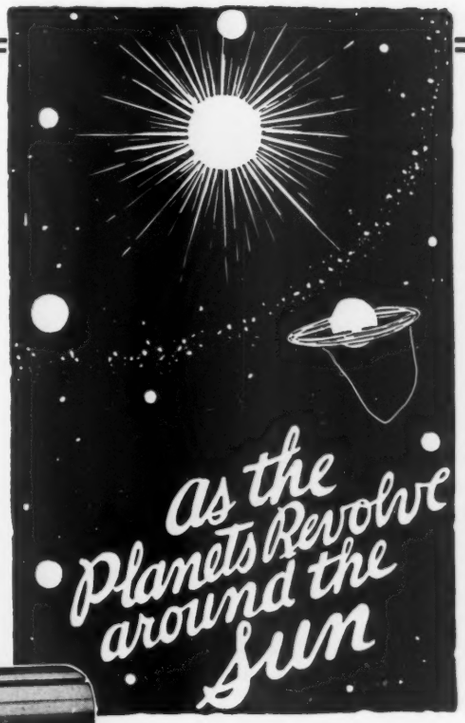
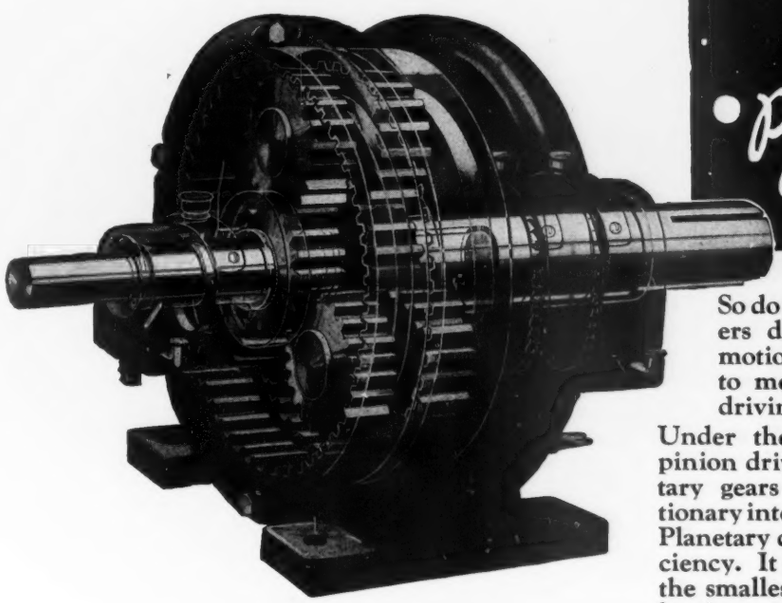
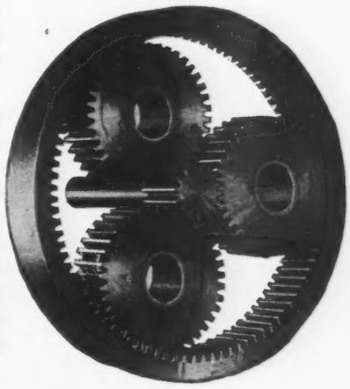




A phantom view of a James Planetary Speed Reducer. We also manufacture Generated Continuous-Tooth Herringbone, and Heavy and Medium Duty Worm Gear Speed Reducers and cut gears of all kinds. As manufacturers of every conceivable type of gear speed reduction, we have available the proper type of reducer to fit your needs, regardless of conditions.

So do James Planetary Speed Reducers drive with a sun and planet motion, being modified in design to meet direct, angle and vertical driving positions.

Under the planetary system, the sun pinion drives the intermediate or planetary gears which rotate within a stationary internal gear keyed to the housing. Planetary construction offers greatest efficiency. It gives the greatest reduction in the smallest space with fewer parts. Vibration, overhanging loads, separation strains and friction are eliminated, providing longer life of all parts. More gears are in constant mesh, allowing for greater reduction in each gear set, while all parts revolve in the same direction, there being no forces fighting against each other to dissipate power. In James Planetary Spur Gear Speed Reducers, all gears are of standard pitch, separate oil reservoirs are provided for the high and low speed shaft bearings, and a patent oil deflecting device prevents oil leakage.



To those writing in on their letterheads now, we will send free a copy of the new James Gear and Speed Reducer Catalog which will be ready for your use shortly. Upon completion, the book will be sold for $5.00. Request your copy today.

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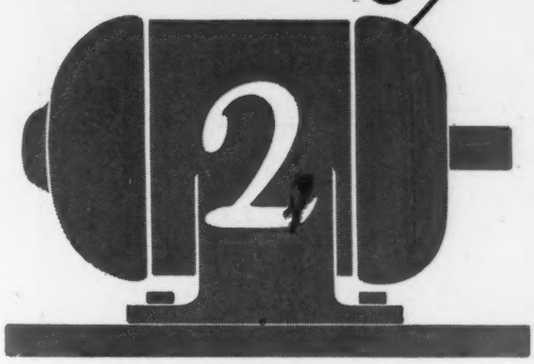

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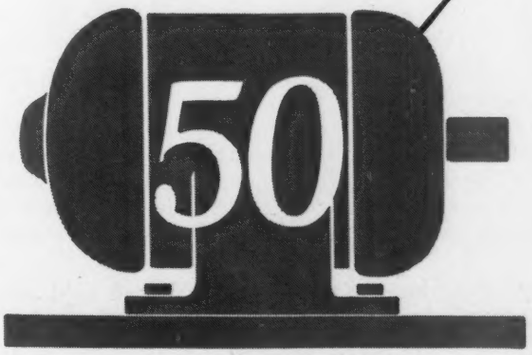

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FIVE
YEARS
AGO
AND
NOW

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Ball Bearings

"Do not believe any other can even compete with it"—

—writes E. E. Cooke, Superintendent of the Carolina Stone Company, Pageland, S. C., after using their 50-B BUCYRUS-ERIE for two years in the hardest of granite quarry service. He goes on to say:

"Two years in a granite quarry is a rigid test for any machine, and we have found the 50-B BUCYRUS-ERIE electric shovel very reliable and economical."

Month after month this reliable machine loads out the rock, giving steady, big outputs. Mr. Cooke reports that this 50-B BUCYRUS-ERIE electric loads an average of 1000 tons of rock per shift, and has given as high as 1,200 tons per shift.

When you talk to quarry operators who know, you soon see why they can depend on BUCYRUS-ERIES for such remarkably steady production. Experienced owners like Mr. Cooke have found that their BUCYRUS-ERIES are built stronger, to stand the faster pace that they set in the toughest digging. Built with the right steels in the right places—simpler and more rugged.

Write us about your digging and rehandling work, and we'll send you some performance records that BUCYRUS-ERIES have made in work like it.

Electric Shovel Gives *Lower Cost per Ton*

More and more quarries are now standardizing on the electric shovel—wherever electric power is available at a reasonable cost.

The same economies that quarrymen have noted when driving their crushers and other stationary equipment by electricity, are now being obtained in loading rock at the quarry face by electrical power.

Many owners of 3-yard and 4-yard BUCYRUS-ERIE electric shovels report a loading cost of 1¾c per ton, or less—this figure being the average for a month's operation, including all costs for shovel crew, insurance, power, etc. *And the smaller electric machines are doing nearly as well.*

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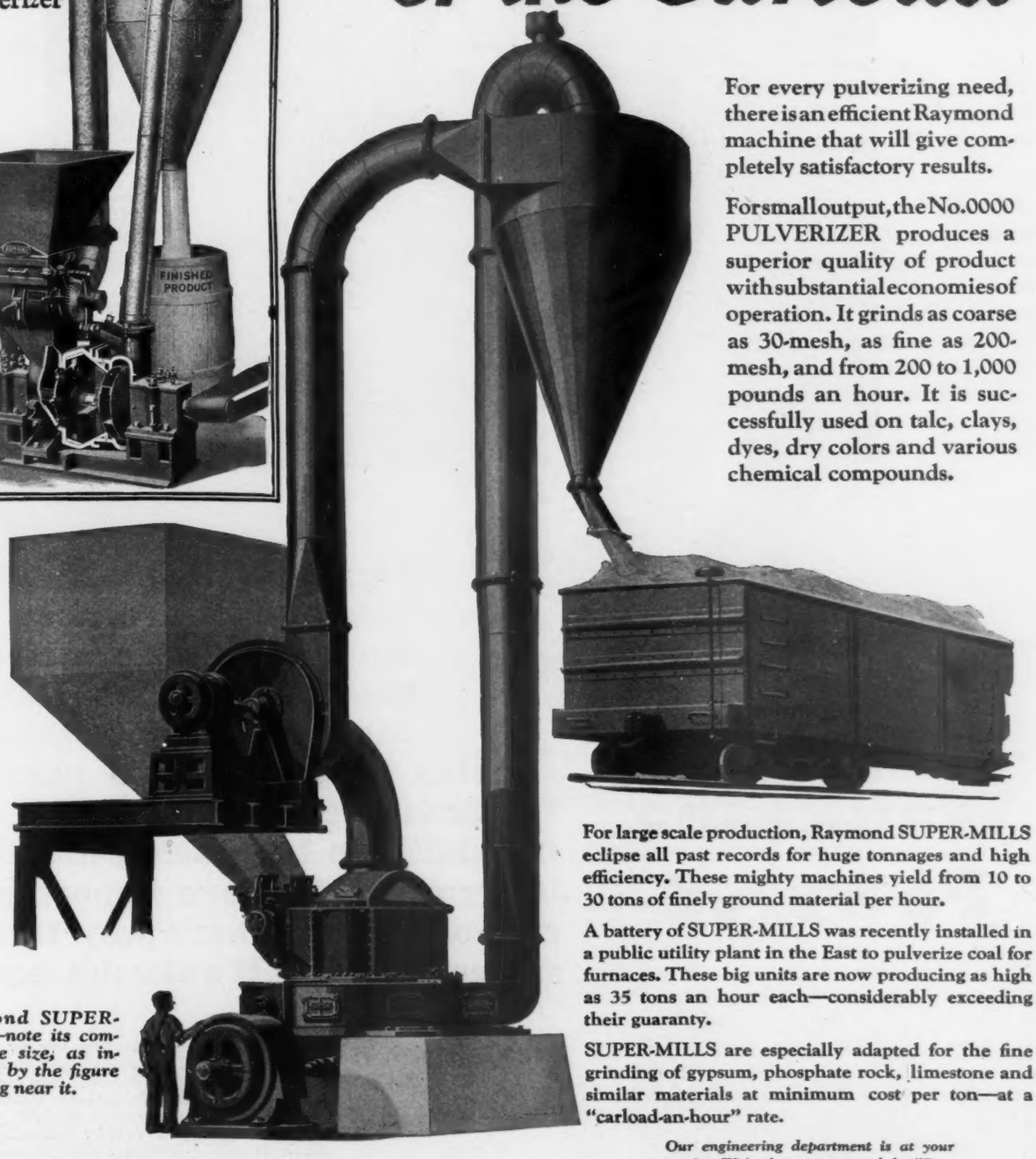

Raymond SUPER-MILL—note its comparative size, as indicated by the figure standing near it.

For large scale production, Raymond SUPER-MILLS eclipse all past records for huge tonnages and high efficiency. These mighty machines yield from 10 to 30 tons of finely ground material per hour.

A battery of SUPER-MILLS was recently installed in a public utility plant in the East to pulverize coal for furnaces. These big units are now producing as high as 35 tons an hour each—considerably exceeding their guaranty.

SUPER-MILLS are especially adapted for the fine grinding of gypsum, phosphate rock, limestone and similar materials at minimum cost per ton—at a "carload-an-hour" rate.

Our engineering department is at your service. Write for your copy of the "Raymond Roller Mill Catalog"

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Subsidiary of the

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n-727-L

Waukesha Powered

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N-850-L

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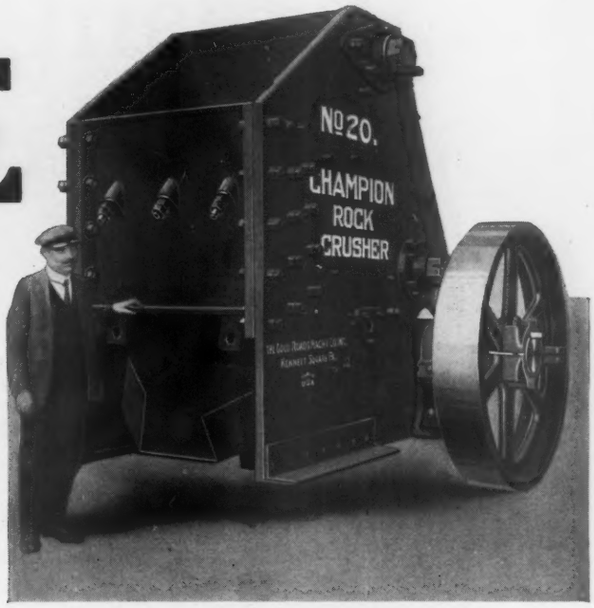

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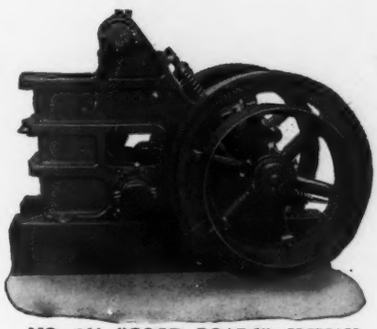

NO. 2½ "GOOD ROADS" CLIMAX CRUSHER

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there is a GOOD ROADS crusher to fit your plant. Either a GOOD ROADS CLIMAX or a GOOD ROADS CHAMPION (both "Good Roads built")—will serve you well. Stocked in all commercial sizes. And don't overlook the famous roller bearing GOOD ROADS CHAMPION NO. 1030.

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Kennett Square, Pa.

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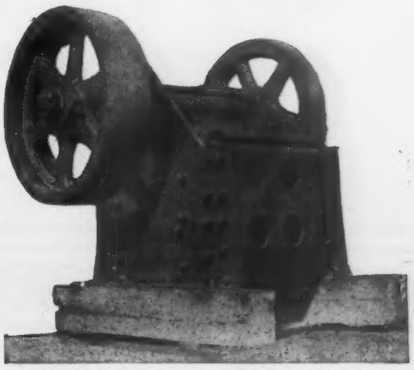

Good Roads Champion No. 1030

A plain statement of facts

MORE than twenty years ago the first commercial oxygen for welding and cutting was produced—Linde Oxygen.

From that day on, Linde has been the standard with which all others are compared.

It has always had by far the largest sale of any oxygen.

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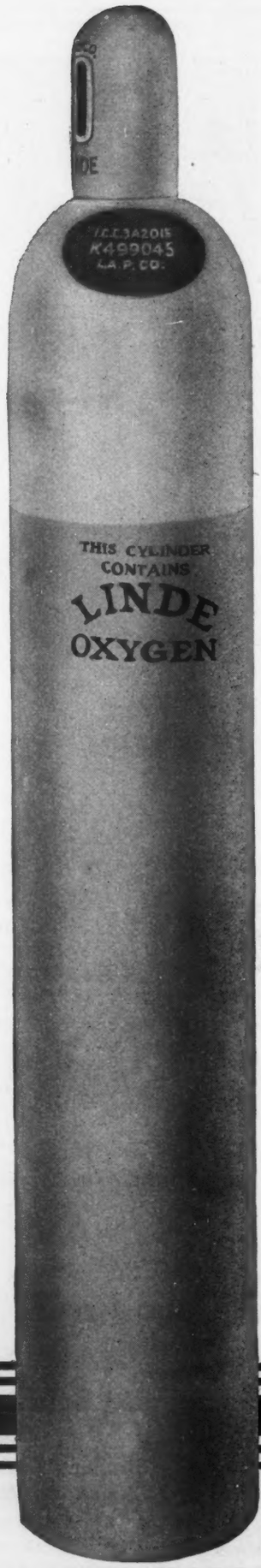
—uniform high quality

—immediate delivery

—Linde Process Service—that insures the most economical results for Linde customers.



THE LINDE AIR PRODUCTS CO.
Unit of Union Carbide and Carbon Corporation
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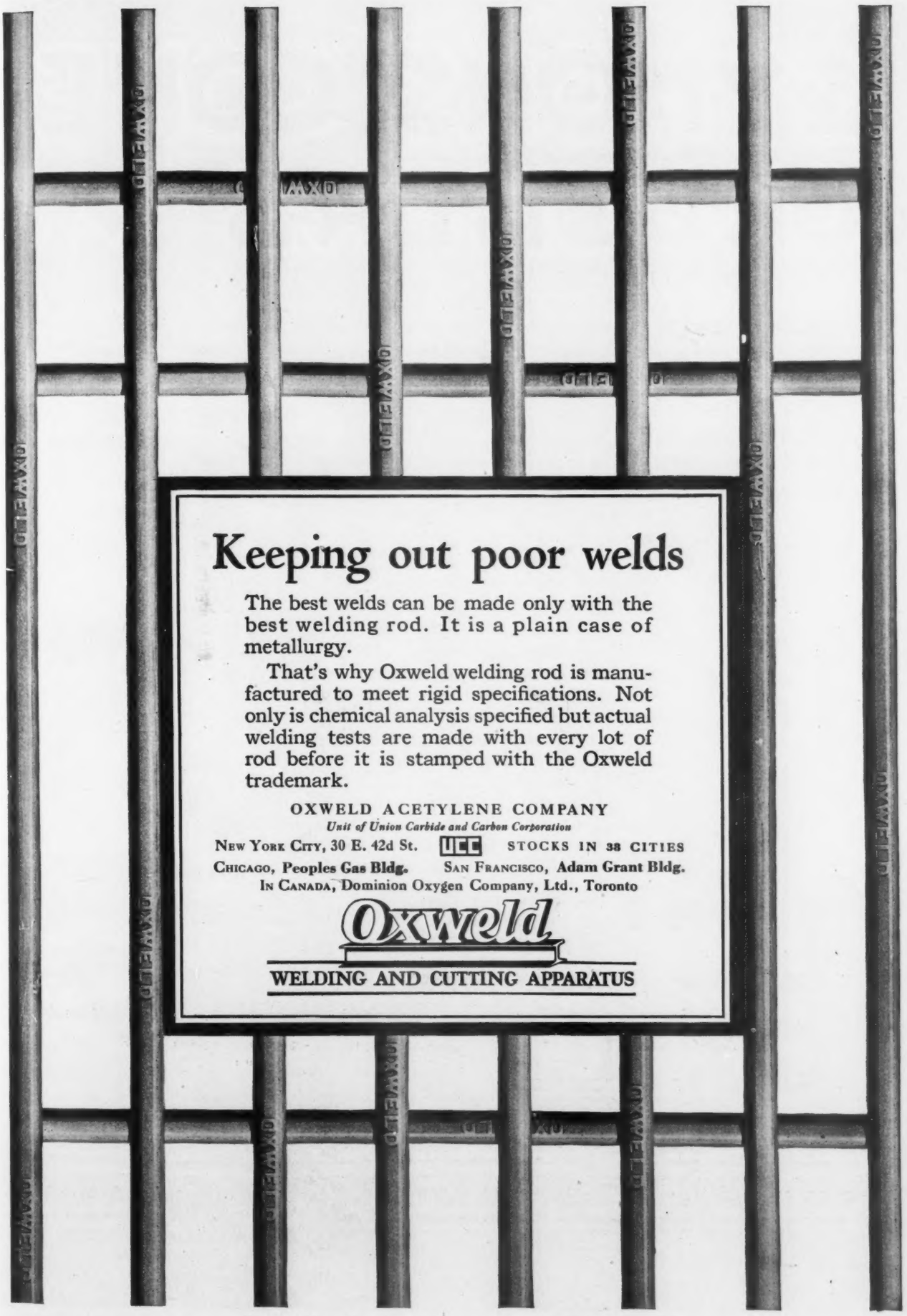
General Offices: Carbide and Carbon Building
30 East 42d Street, New York

LINDE OXYGEN



Keeping out poor welds

The best welds can be made only with the best welding rod. It is a plain case of metallurgy.

That's why Oxweld welding rod is manufactured to meet rigid specifications. Not only is chemical analysis specified but actual welding tests are made with every lot of rod before it is stamped with the Oxweld trademark.

OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation

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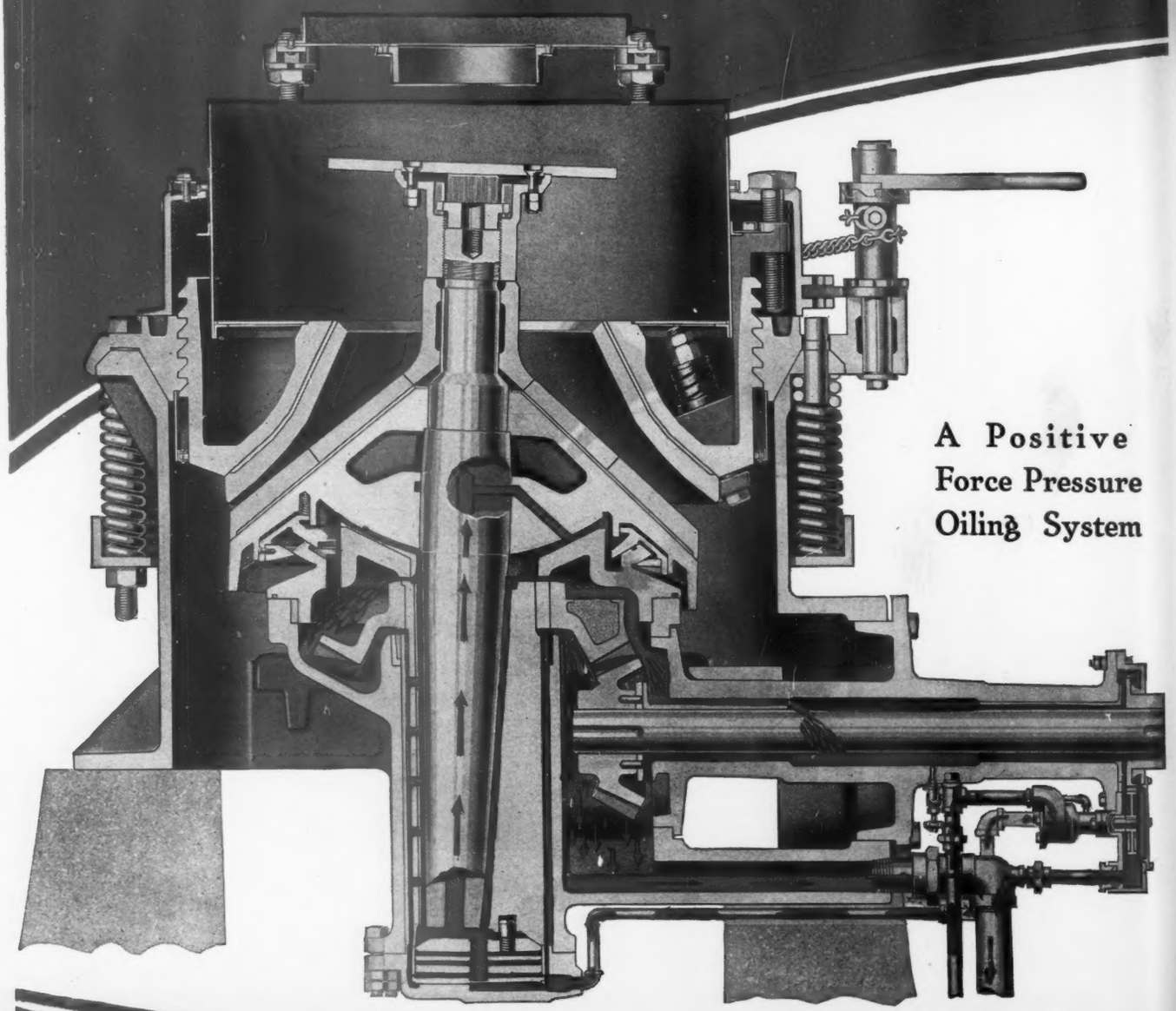
WELDING AND CUTTING APPARATUS

SYMONS CONE CRUSHERS '28



A Positive Force Pressure Oiling System

SYMONS BROTHERS COMPANY

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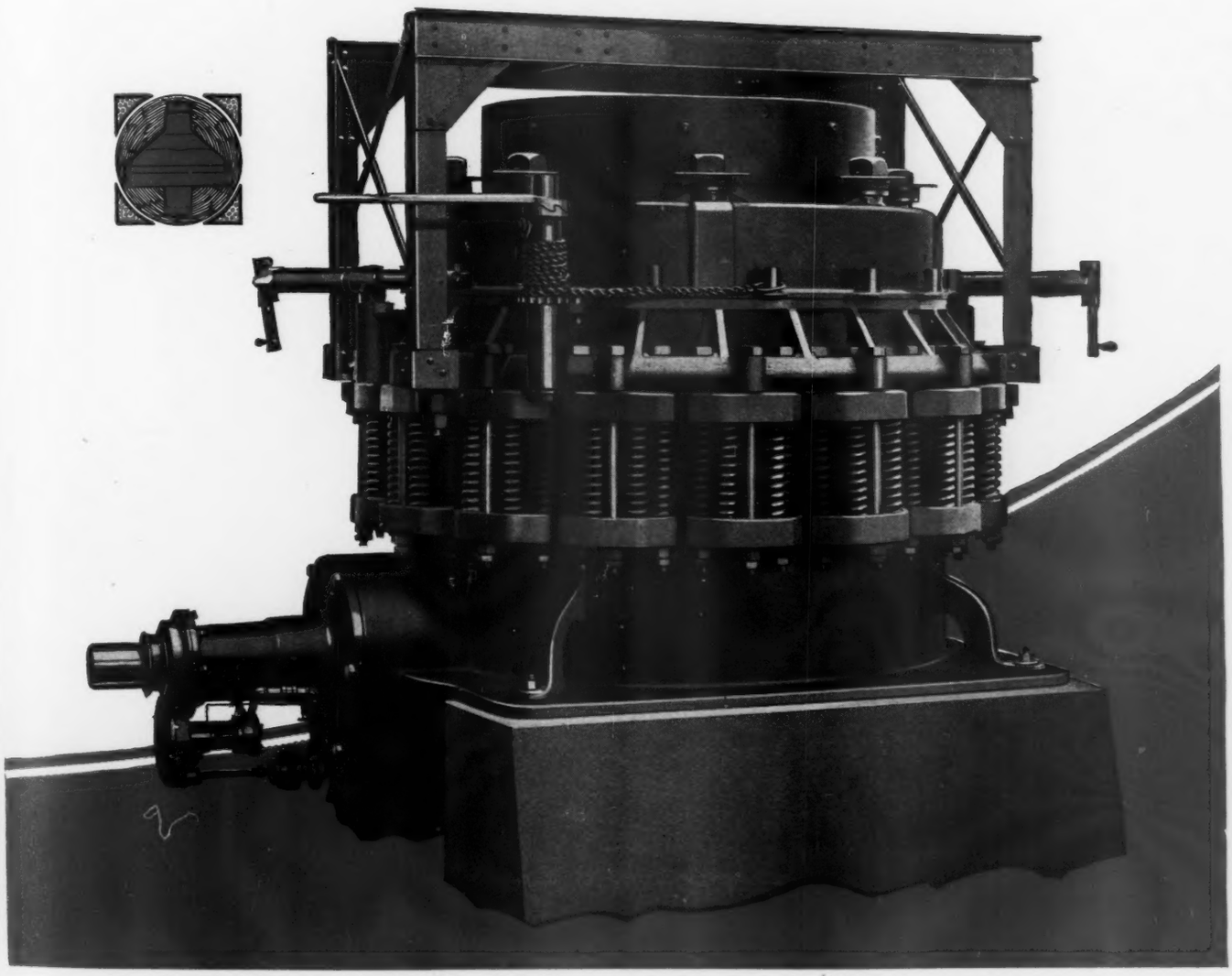
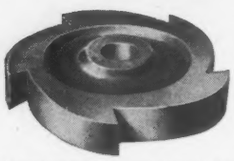
GREATER TONNAGE A FINER AGGREGATE UNIFORM SIZE ⅞ ⅞

A range of finished product sizes and capacity per machine that makes Cone Crushers the outstanding choice.

Our latest catalog is interesting—write for it.

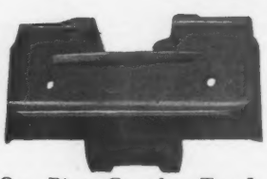


Made of AMSCO Manganese Steel they have an assured longer life

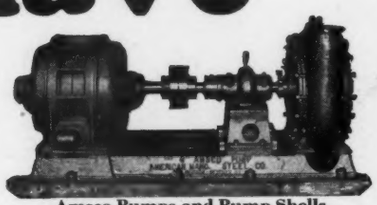


A Ratchet of Amsco Steel for a sand cutting machine, long life assured.

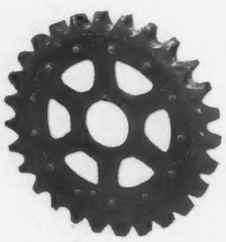
Gears and Pinions, all sizes and styles, for constant duty where loads are heavy. Amsco made.



One Piece Crawler Treads, Amsco made, give unusually long service.

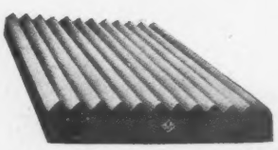


Amsco Pumps and Pump Shells have an assured longer life, ideal for handling abrasive materials.



Hunting Tooth Split Rim Sprocket Wheels of Amsco are your assurance of trouble-free operation.

Amsco Made Front Idlers for Holt and Best Tractors eliminate breakdowns, and save time and money.



Crusher Parts, made of Amsco, assure lasting satisfaction and economy.

Carried in stock, Amsco Chains, all sizes and classes.

Use Amsco Buckets for long wear. Made in all sizes and shapes to suit every need.

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A Modern Method of Financing

Many operators of rock products plants know that power costs are absorbing profits—yet the thought of the initial investment prevents a change to Diesel equipment.

Fairbanks-Morse has worked out a plan whereby any well managed plant can arrange to secure the economy of F-M Diesels.

The plan is sound financing. It will be recommended by your banker as best for your interests.

The "Savings Payment" Plan is outlined in a special booklet which we will gladly send upon request. Just ask for Publication No. 3011. You will not be obligated in any way.

POWER PUMPING AND WEIGHING EQUIPMENT

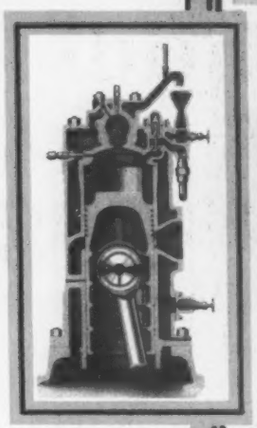
FAIRBANKS-MORSE

DIESEL ENGINES

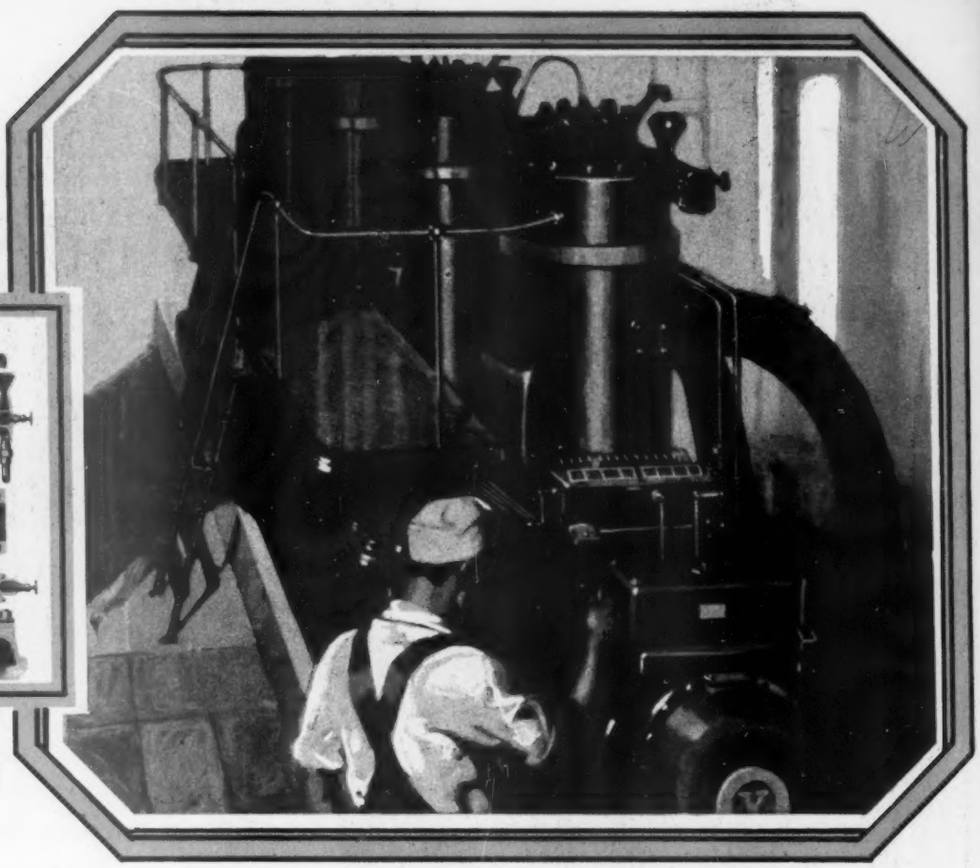
FAIRBANKS-MORSE *Diesel Engines*

FAIRBANKS-MORSE DIESEL ENGINES

2 Cycle!



AIRLESS INJECTION



Maximum demand penalties -- *Avoid them with F-M Diesels!*

Just visualize an F-M Diesel as furnishing the power for your plant. Operate it at full load 24 hours per day during your busy season. Then go into a slack period and operate a fraction of the day. *The per unit expenditure for power is practically the same!* Your days of partial operation are not penalized by a maximum demand power rate established when operating at full capacity—and you have no expenditure for power when the plant is not running. With F-M Diesels your power expenditure parallels the *rate* of production.

Many industries are turning to Fairbanks-Morse Diesels as their lowest cost source of power. The two-cycle construction with its freedom from fuel and exhaust valve maintenance—the *continuous* fuel economy—and the maximum over-all economy of operation—have won for these engines the preference in every plant where power costs are watched and studied.

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Branches and Service Stations Covering Every State in the Union

FAIRBANKS-MORSE

DIESEL ENGINES

AOA05.2

Listed as standard by the Underwriters' Laboratories, Inc.

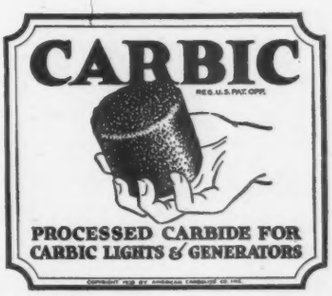
"You can't equal the Carbic for generator* portability"

IT couldn't be any simpler in construction. There are no moving parts. You can charge it in three minutes. Two men can carry it. It weighs only 200 pounds fully charged. It has unique safety features.

The initial cost is small and it is extremely economical to operate.

With a Carbic low pressure generator and a few drums of Carbic, you are always ready for any ordinary welding or cutting work.

Send for our new catalogue.



A standard drum of Carbic contains forty cakes, size No. 20. Carbic is distributed by the Union Carbide Sales Company through its national chain of warehouses.

OXWELD ACETYLENE COMPANY
Unit of Union Carbide and Carbon Corporation
New York City, 30 East 42d St. UCC Chicago, Peoples Gas Bldg.
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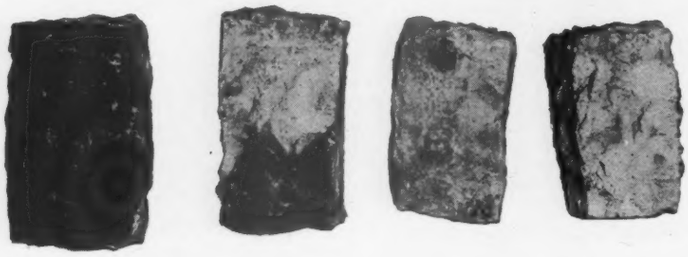
CARBIC GENERATOR

For Oxy-Acetylene Welding and Cutting

***Anyone having a Carbic Generator is entitled to Oxweld Generator Service. Phone or write our nearest district office.**

TUBEMILL LININGS

Silex



Silex is pure flint stone. It has been used for lining tubemills for many years. The rough hewn surface of the Silex gives a maximum friction between the lining and the charge in the tubemill resulting in the highest efficiency in the operation of the machine. The rough surface is retained by the Silex during its entire life in the tubemill.

The best Silex is quarried in Belgium. For more than thirty years we have been importing Belgian Silex, usually in three thicknesses, 2½-in., 3-in., and 4-in.

Shipments from stock

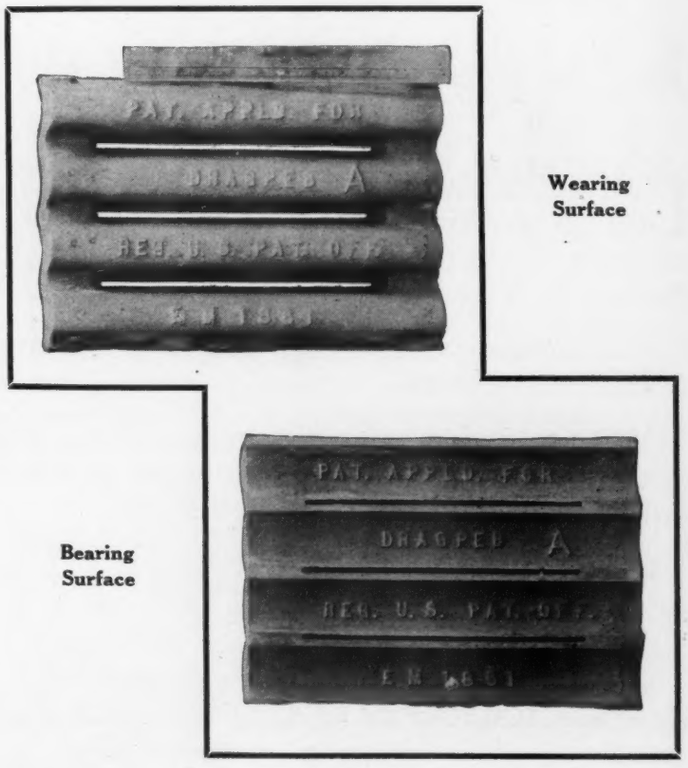
Dragpeb

(Trademark Reg.)

Dragpeb liners for tubemills are made of a special mixture of hard iron, under strict laboratory control. The Dragpeb lining has been developed to give the frictional effect of the Silex. Dragpeb liners will not become smooth or polished but will retain their original corrugations. Dragpeb liners have an efficiency equal to the Silex and will wear better.

No bolts or wedges are required for fastening Dragpeb liners in the tubemill. Portland cement is used.

Prices on application



Wearing Surface

Bearing Surface

F. L. Smidth & Co.

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ENGINEERS

Designers and Equippers of Cement Making Factories

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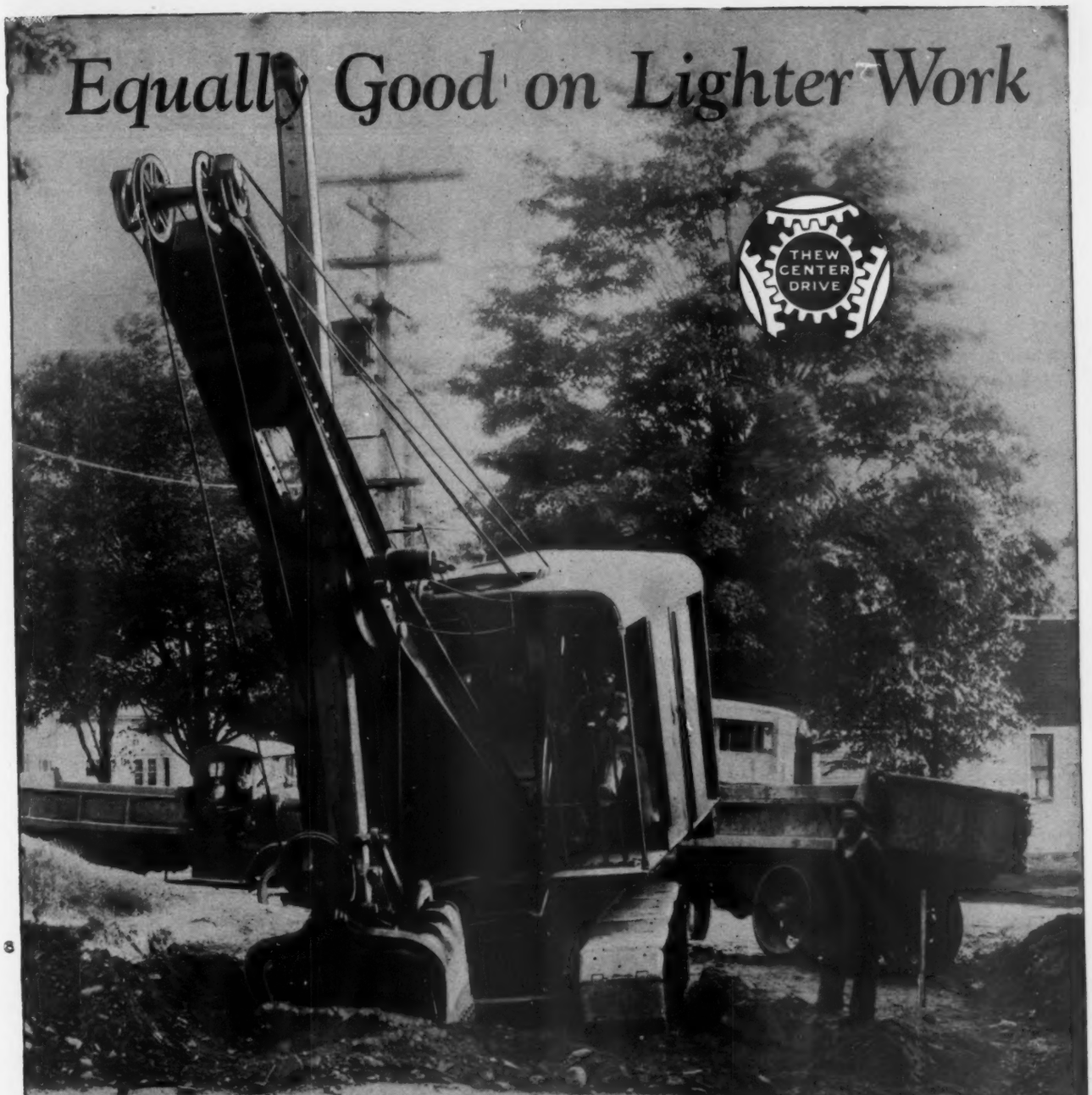
Equally Good on Lighter Work



YOU would expect to find a machine that is capable of herculean feats of power, rather clumsy and slow on the lighter work. But the contrary is true of Lorain 60 and 75 Shovels. The light weight, direct application of power, simple, positive controls and other features of construction make this machine so easily handled that operators are enthusiastic. It will carry a sub-grade as smooth as a floor.

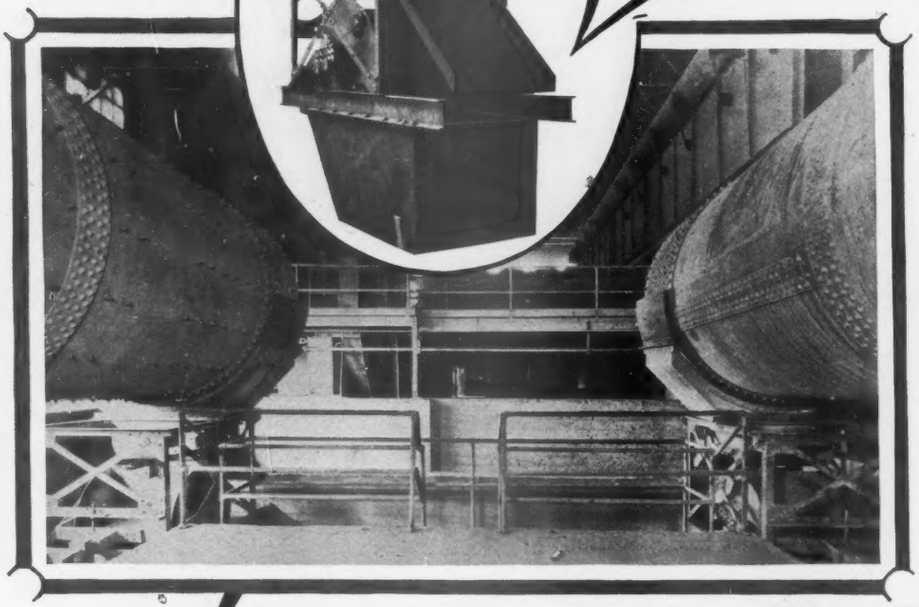
THE THEW SHOVEL COMPANY, LORAIN, OHIO

Gasoline or Electric Powered

Shovels • Cranes • Draglines • Backdiggers

THEW LORAIN 60 AND 75

KILN PRODUCTION CONSTANTLY *Checked!*



Showing Vulcan Rotary Clinker Scales installed on discharge ends of rotary coolers. Result is an actual production record of each burning and cooling unit.

Vulcan Rotary Clinker Scales

Vulcan Products

Hoists,
Electric and Steam
Locomotives,
Steam, Gasoline, Electric
Rotary Kilns, Dryers, Coolers and Roasters
Fairchild Double-Discharge Ball Mill
Mine Ventilating Fans
Cages and Skips
Sheave Wheels
Corliss Engines
Coal Crushers
Gray Iron Castings
Open Hearth Steel Castings
Gears, Moulded and Cut Teeth
Special Machinery

As the latest addition to our already extensive line of equipment for the manufacture of Portland Cement, we are pleased to offer the new Vulcan Rotary Clinker Scales.

In designing this equipment, the foremost aim has been to provide a machine which would keep an actual production record of each kiln and cooler, thus enabling the operator to keep each unit at maximum production efficiency—with subsequent lowering of production costs.

These Scales are very simple in design, and of such rugged construction as to insure continuous operation for long periods without maintenance. Equipment of this kind will, without question, come to be regarded as essential for cement plants, especially in the present era, when one of the chief concerns of cement manufacturers is to hold production costs to the lowest possible figure.

We will be pleased to have our engineers work with you, and submit recommendations for an installation in your plant. No obligation.

Ask for Descriptive Bulletin on Vulcan Rotary Clinker Scales

VULCAN IRON WORKS
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VULCAN *of* **WILKES-BARRE**
CLINKER SCALES

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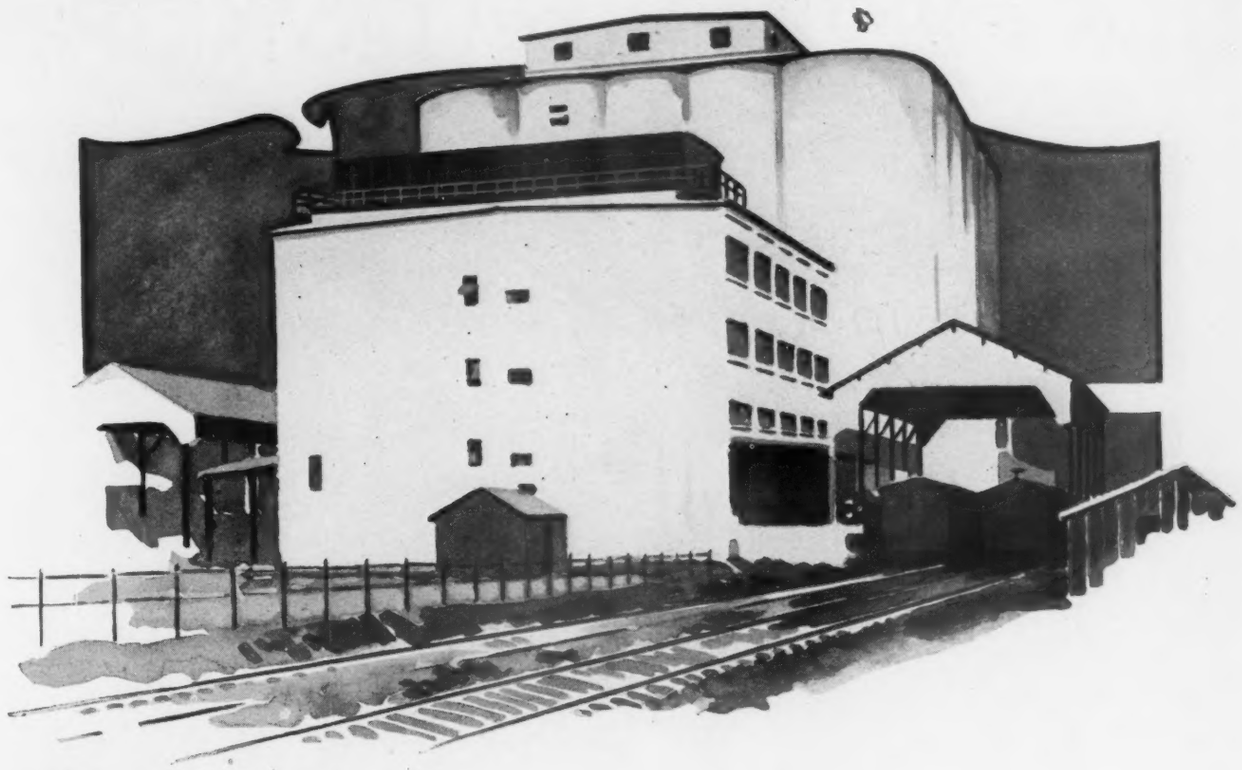

Dust is a profit taker!

Cement dust flying free from baggers, bag cleaning wheels, etc., represents a net loss of valuable cement; and the diamond-like particles of dust cause terrific wear on parts of plant equipment.

or a profit maker!!

The cash value of cement dust, when it is arrested, bagged and sold, pays a substantial profit. More years of service from your plant equipment pays another profit—the absence of dust reduces hazard and reduces the cost of keeping the plant clean.

Hundreds of Sly Dust Arresters are now installed in nearly one hundred cement plants, turning losses into profits.

If you have a dust problem in any part of your plant, or you desire to ventilate finish grinding mills, conveyors, screens — or cool cement, a Sly Engineer will be glad to call and suggest the necessary equipment.

Write for Bulletin S-125

THE W. W. SLY MANUFACTURING COMPANY
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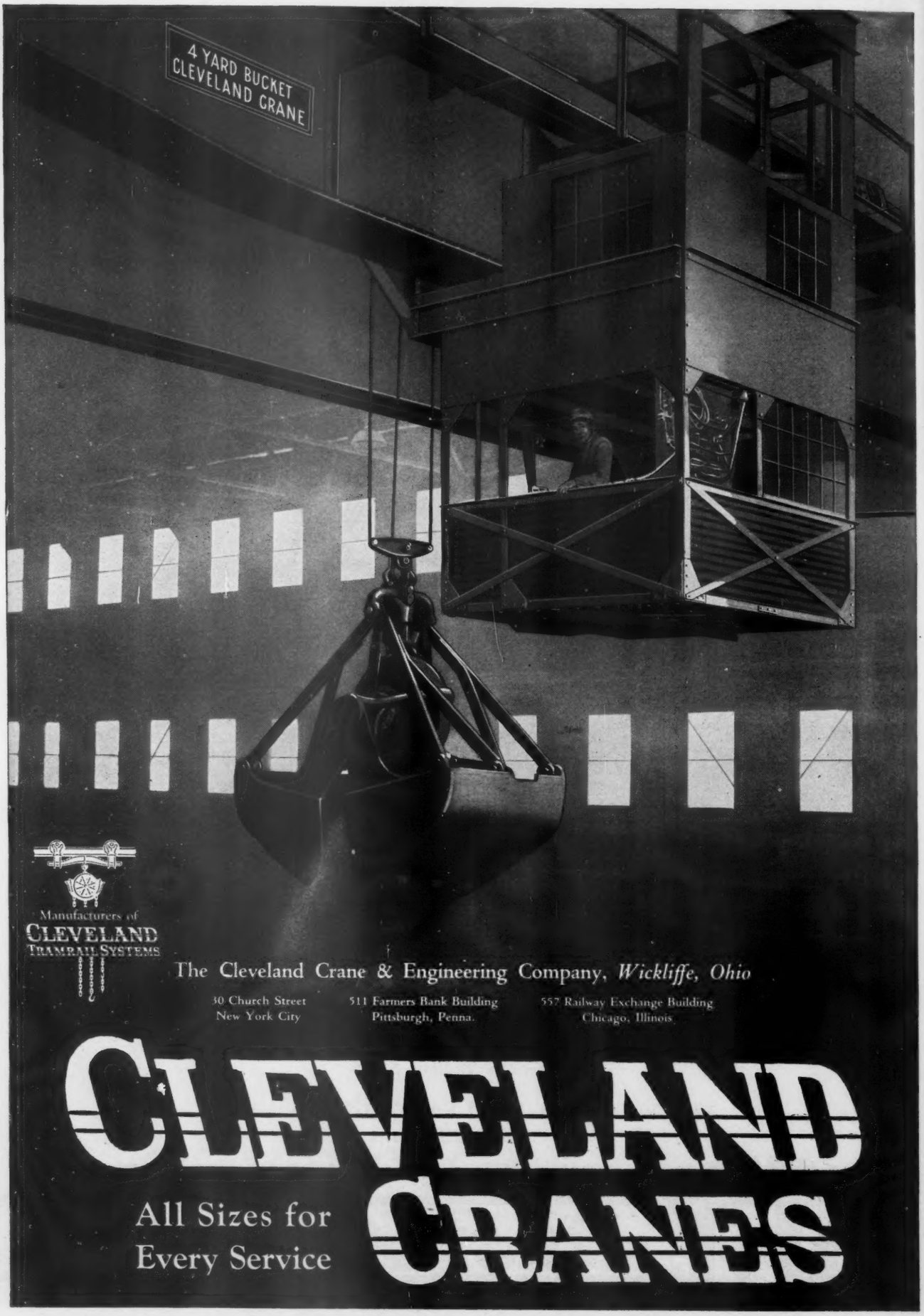
Established 1874 ***Branches in principal cities***

SLY *Dust Arresters*



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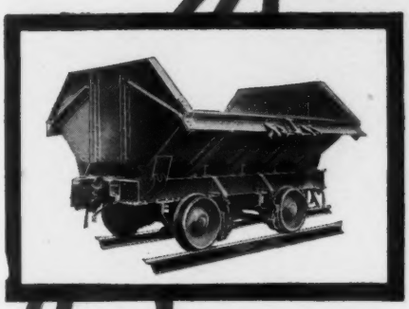
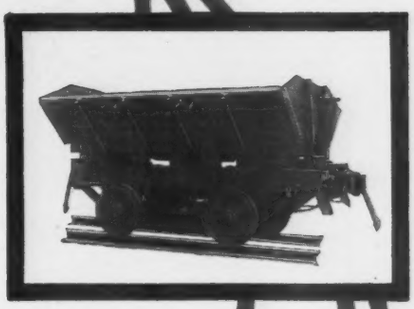
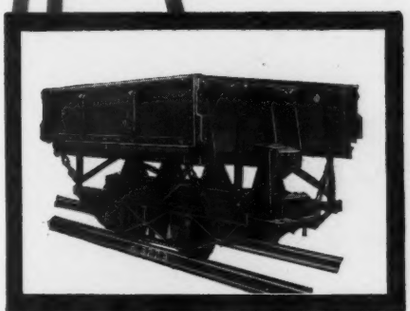
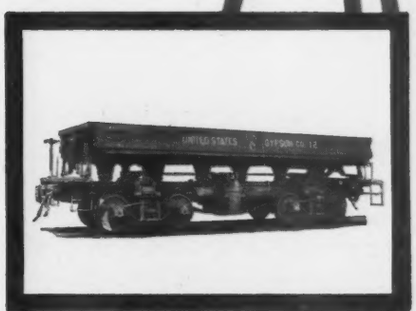
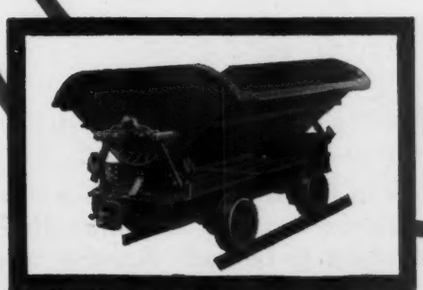
best for all purposes











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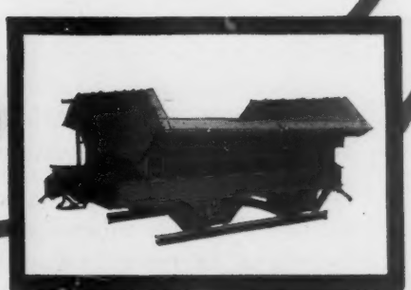
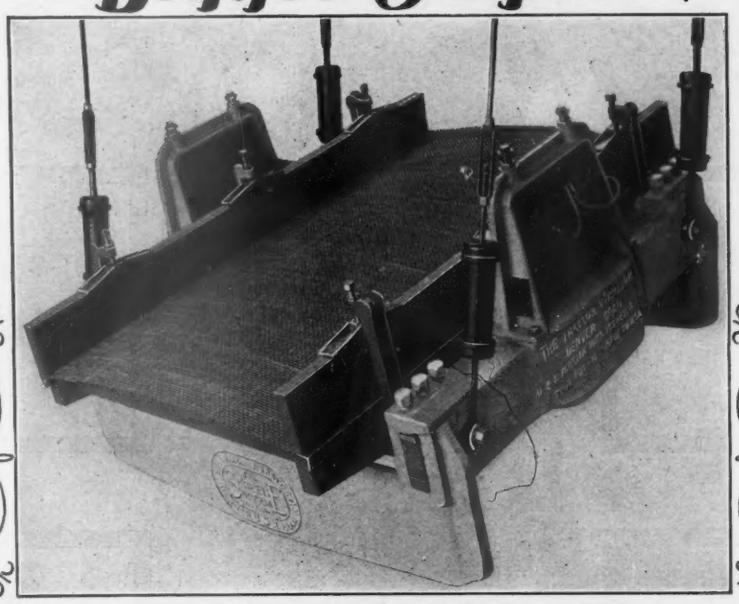


POSITIVE CONTROL

Bigger Output



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NO Bearings- Belts - Oil or Grease

EASE of operation and control is a feature of the Screen Supreme without comparison in any vibrating screen. As the character or flow of the material may vary, so also may the character of the vibratory motion be varied to best cope with all feed conditions.

By merely turning a rheostat, the intensity of the vibration may be increased or retarded—thereby making the screen instantly adjustable and assuring maximum output and accurate separations regardless of screen load or the nature of the material being handled.

Only in the Screen Supreme is this valuable feature of ***controlled vibration*** to be had. Another advantage of the exclusive Traylor principle of ***electrical vibration.***

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Transmits 21,000 H. P. at 100 R. P. M.
Installed at Kokomo Steel & Wire Co.

Takes up impact.
Corrects misa-
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Damp Out Vibration!

Falk Flexible Couplings damp out vibration --- absorb shocks, save machinery. As they are all steel and fully lubricated, they will prevent misalignment of your machines for an indefinite period. There is a Falk Coupling made on a production basis to fit your needs.

Quotations made on any specification. Ask for descriptive bulletins

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Speed Reducers

Type "D" standard dou reduction unit with cov removed. Ratios 10:1 to 70:1

Precision Built

Falk Gears are cut on Falk Special Machines. Compensated system of division gives accuracy within ten seconds of arc. All shafts ground to final tolerances. Casings bored and tapped to jigs. Absolute alignment of all parts insured. Falk Speed Reducers are the product of an engineering organization. Standardized for industrial needs. Priced from a production basis. Bulletin No. 160 giving all details of standard units available upon request.

Inquiries on your requirements are welcomed.

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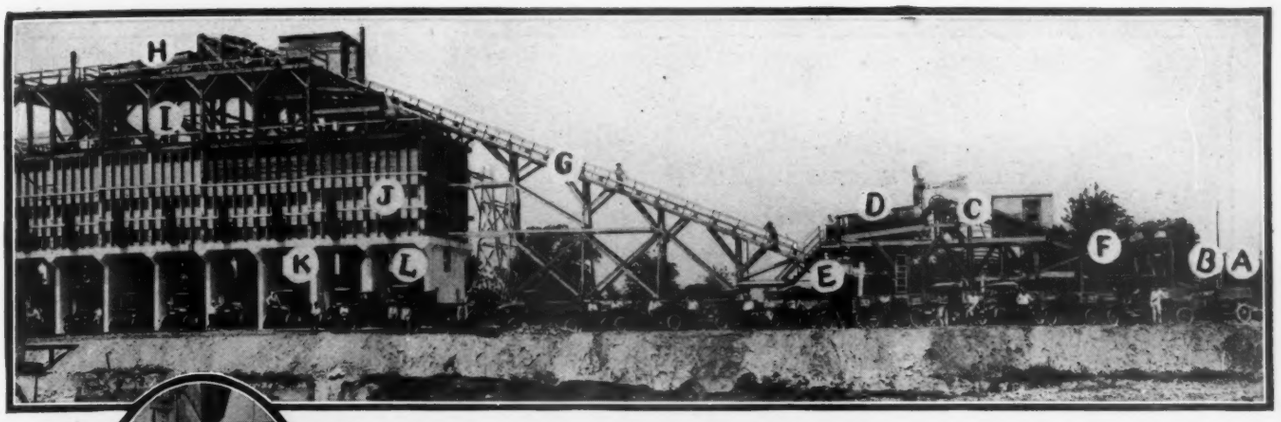
FALK OIL ENGINES

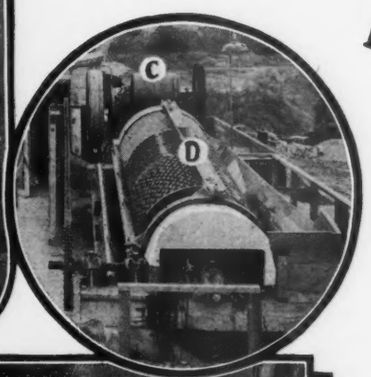
FALK HERRINGBONE GEARS

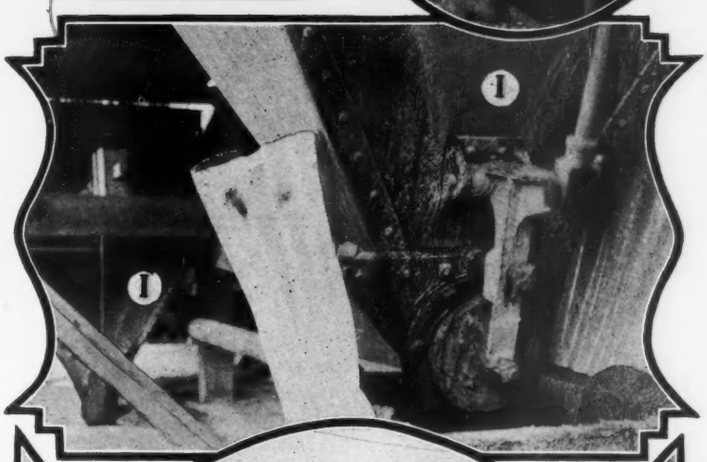
FALK SPEED REDUCERS

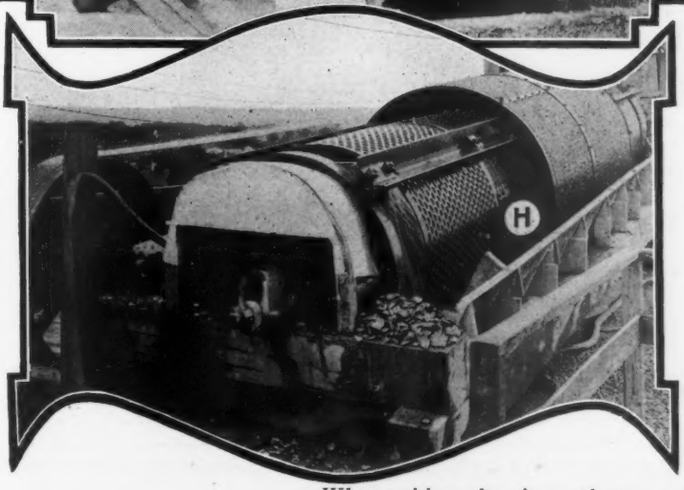
FALK FLEXIBLE COUPLINGS

FALK STEEL CASTINGS









EVERYTHING you want in a gravel Plant by TELSMITH

One of the largest and most modern in the Southwest — the plant of the Fort Worth Sand & Gravel Co., Fort Worth, Texas, was completed in 1926 and is producing a daily capacity of 1,000 tons. It was designed by Telsmith engineers and is Telsmith equipped throughout.

Everything about this plant is very substantial. No compromises were made—in either the plans or the machines—no costs were "whittled down." The plant is not only exceptionally well balanced but extremely flexible. It is ingeniously arranged to turn out "proportioned aggregate"—the different sizes can be mixed as desired, to conform exactly with the specifications of the customer.

The equipment used is as follows: (A) Grizzly made of 50 lb. steel rails; (B) Telsmith Plate Feeder, 24x60 in.; (C) 24 in. Telsmith Belt Conveyor, 111 ft. long; (D) Telsmith Heavy Duty Scalping Screen, 48 in. x 12 ft., in three sections; (E) Telsmith Primary Breaker; (F) 16 in. Telsmith Belt Conveyor, 55 ft. long; (G) 24 in. Telsmith Belt Conveyor 149 ft. long; (H) Telsmith Heavy Duty Washing Screen, 48 in. x 20 ft.; (I) Two No. 6 and two No. 7 Telsmith Sand Tanks; (J) 16 Telsmith Quadrant Bin Gates, 18 in. size; (K) 8 Telsmith Simplex Bin Gates, 15 in. size; (L) Telsmith Duplex Bin Gates, 16 in. size.

Let us tell you how *your* gravel plant can be designed and built *complete* and *results guaranteed* by Telsmith Balanced Service. Write for Bulletin G. P. 11.

SMITH ENGINEERING WORKS
86 Capitol Drive, Milwaukee, Wis.

Canadian Representative:
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G. P. 15

ON and after June 1st, 1928, lump sum building contracts undertaken by Ferguson engineers on plans and specifications which they have prepared or approved for such guarantee, will carry the following clause:

"The Builder guarantees the work against defective workmanship and material for a period of five years after date of completion." • • • • •

This is the first time that any organization has ever established a policy of guaranteeing complete building projects for so long a period. Ferguson engineers do it voluntarily because they assume complete responsibility for layout and design, as well as for the actual construction itself.

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Ferguson
ENGINEERS

New Standards of Service

While ORTON cranes, shovels, draglines, ditchers and buckets are subject to a minimum amount of repair, occasions arise when parts have to be replaced. At such times the owner's needs must be understood, and the necessity for immediate action appreciated.

ORTON service meets these emergencies. Its promptness is made possible because replacement stocks for all of the different models are always maintained at the manufacturing plant at Huntington, Indiana, pictured above. Provision is made for shipment or delivery at any time of the day or night.

An extensive check on the shipment of replacement and extra parts for ORTON machines recently showed that 95 per cent of the orders were shipped the day they were received, 3 per cent the second day, and the remaining 2 per cent the third day.

In nearly every case, shipments to points within a night's ride of Huntington were received the day after they were ordered.

Think what service like this means when you are on the job, and some unforeseen circumstance keeps men and materials waiting. Then you will understand why service is one of the many advantages of owning and operating an ORTON.

ORTON CRANE & SHOVEL CO.
608 S. Dearborn St., Chicago, Ill.

Manufacturers of Locomotive Cranes; Flexible Tread Cranes, Shovels, Draglines, Ditchers and Skimmers; Truck Cranes; Road Wheel Cranes; Gantry Cranes; Clamshell and Orange-Peel Buckets; Coal Crushers

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ORTON
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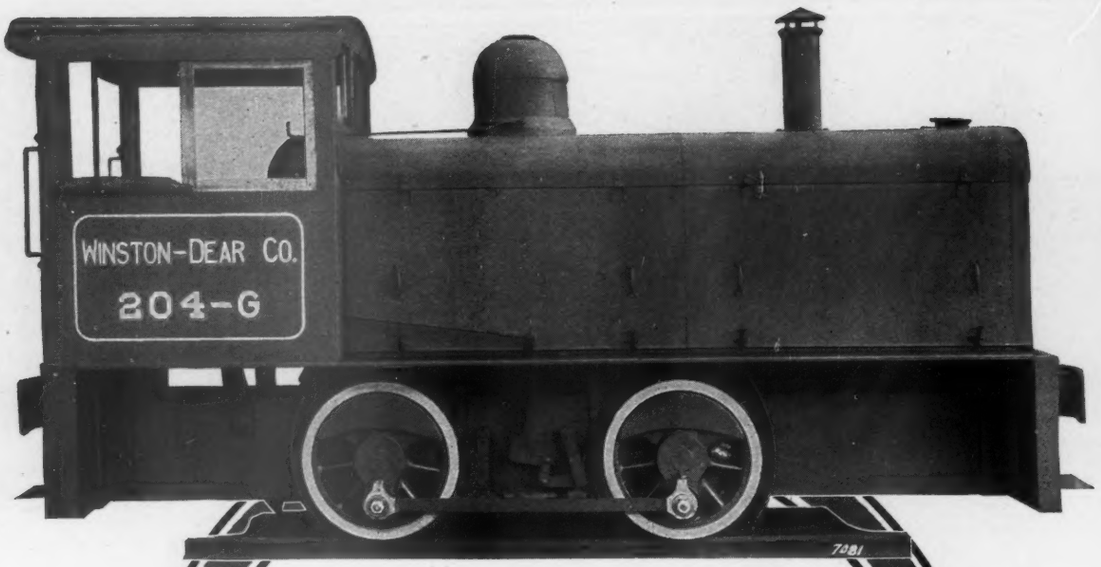

PORTER
Gasoline Locomotives

PORTER "better built" locomotives

All the superior skill that comes with Porter's 65 years of specialization is concentrated into the design and construction of the Porter Gasoline Locomotive.

Direct, straight line drive is an outstanding advantage that gives the Porter far greater efficiency than worm gear or other driving device. No chains, sprockets or universal joints are needed. Tractive power is increased to the utmost. Gears are always in mesh . . . eliminating all possibility of stripping.

Just read a detailed description of this advanced gasoline locomotive and you will agree with us that it is the best that money can buy . . . bar none.

H. K. Porter Co.
PITTSBURGH, PA.
Chicago Office: Engineering Building Wells Street and Wacker Drive
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Ten Leading Features of Porter Locomotives

1 Straight line mounting of power plant and driving mechanism on sub-frame.
2 Direct drive to rear axle.
3 No chains, sprockets, worm gears or universal joints.
4 Reverse unit and axle drive gears entirely independent of transmission.
5 Frames and bumpers of rolled steel slabs.
6 Three-point main spring suspension with cross equalizers.
7 The same massive strength of the famous Porter Steam Dinkey.
8 Roller and ball bearings throughout.
9 Impossible to strip transmission gears because they are always in mesh.
10 A product of 65 years of industrial locomotive specialization.

Porter Also Builds Gasoline-Electric Locomotives 10 to 50 Tons

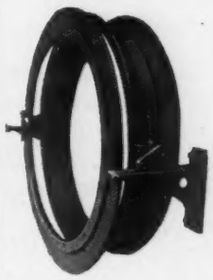
Save Heat

where heat is needed!

Huron Seal Rings increase operating efficiency by maintaining a perfect and constant seal on any kiln, dryer or cooler in which it is desirable to retain heat or gases or from which drafts are to be excluded.

They seal by gravity—there are no springs to weaken. They require no lubrication, no repairs. The first one installed, six years ago, is still running and hasn't been touched in that time.

On kilns and dryers, heat is retained, fuel economized.



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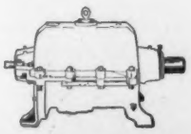
When applied to the discharge end of rotary kilns, Huron Rings make control of the burning easier.

Where excess combustion gases are utilized under waste heat boilers, boiler efficiency is increased from 7% to 10%.

Write for descriptive booklet—learn how your production processes may be more economically conducted when your rotary equipment is Huron-sealed.



HURON Speed Reducers

—are designed and built to meet the rigid requirements of the rock products industries. Special features include built in thrust bearings and self contained oil pump. *Write for our reducer catalog.*

HURON INDUSTRIES, INC. - - ALPENA, MICH.

HURON Seal Rings

for ROTARY KILNS-DRYERS-COOLERS

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POWER—

Where and When you want it!

WHERE?

At the draw-bar. A steady pull from a powerful engine delivered without loss to the point where it does a full measure of honest work. That's where the inbuilt Whitcomb quality of "more power per ton of weight" really asserts itself —and demonstrates the superior ability of Whitcomb Locomotives to start and pull—on heavy grades, sharp curves and rough track—heavier loads than a steam locomotive of the same weight.

WHEN?

Instantly! Whenever power is needed, Whitcomb Locomotives are ready in a jiffy. No preliminary steaming up—no flues to clean—no grates or clinkers. Just 100% efficient every minute—and if need be, for 24 hours of the day. Full power available ***instantly***—and for that reason heavy loads are started with ease and moved without delay.

Let your next locomotive be a Whitcomb—then you'll know the satisfaction, economy, and year after year dependability of these industrial haulage units.

Made in sizes from 2-1/2 to 50 tons, for all track gauges. Gasoline or electric powered.

GEO. D. WHITCOMB COMPANY

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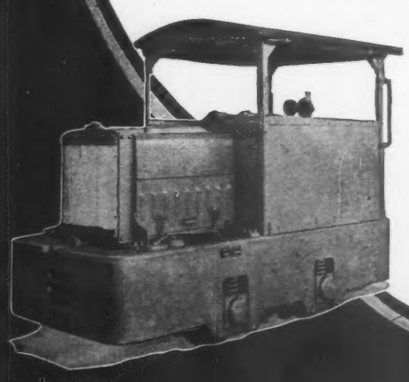
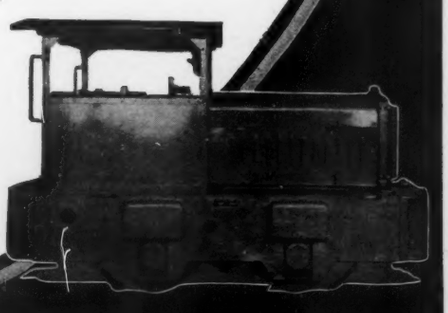
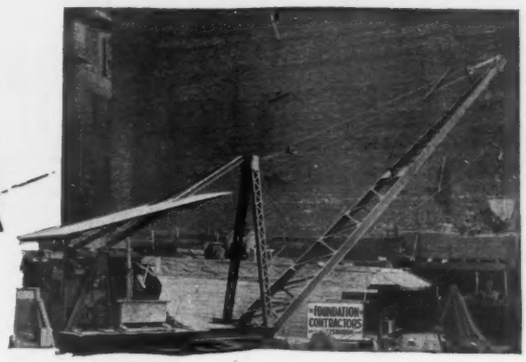




WHITCOMB LOCOMOTIVES

GASOLINE ELECTRIC

FULL ROTATING



Dobbie Derrick

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ESTABLISHED 1862

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Some Exclusive Sales Territories are now Available.

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Sheaves
Blocks
Wood Derrick Fittings

are carried in stock at

74 WARREN STREET
NEW YORK CITY

SPEED up your material handling operation with the Dobbie Full-Rotating Derrick! Where the ordinary derrick is only good for 270 degrees, this new Dobbie machine keeps going right on around in either direction for a full circle! No time lost in back-tracking.

On a multitude of material handling jobs—for stock-piling, loading and unloading barges and cars, excavating—in fact wherever derricks are used at all, the Dobbie Full Rotating machine sets a new standard of efficiency.

In service, one of these full rotating machines has proven equal in working capacity to two derricks of the stiff-leg type. The latter type can swing only 270 degrees—then it has to go back.

This machine rotates on a single, circular rail track, on roller bearing equipped wheels. It is unusually fast—being capable of making 2.4 revolutions per minute.

Construction is of steel throughout. Operated by a Mundy 3-Speed Hoist, with either gasoline or electric power.

A folder fully describing this rotating derrick will be sent on request.

The Mundy Sales Corporation

Distributors for
The Dobbie Foundry & Machine Co., Niagara Falls, N. Y.
Sales and Export Office, - 30 Church Street, New York

DOBBIE DERRICKS

Sheaves ~~ Hand Winches ~~ Blocks

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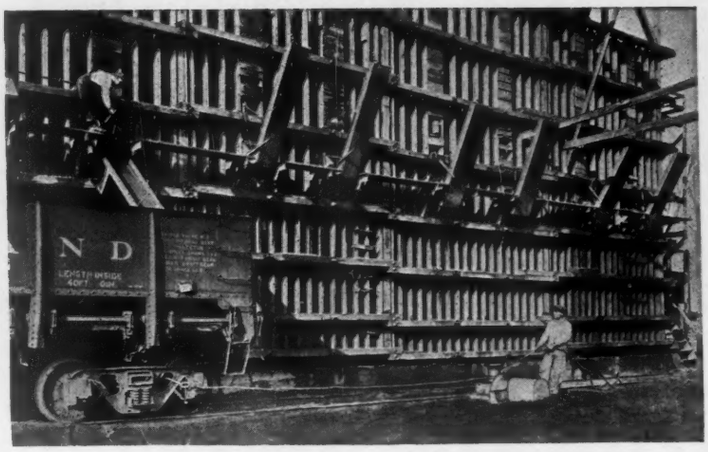
MEAD-MORRISON

CLEAR YOUR TRACKS
with this Electric Car Puller

The Mead-Morrison Electric Car Puller moves cars ten times as fast as they can be moved by hand. It is operated by one man. Sand and gravel pits, crushed stone plants, lime, magnesite and cement works find the Car Puller pays for itself in a few months. ***Write for Bulletin No. 132.***



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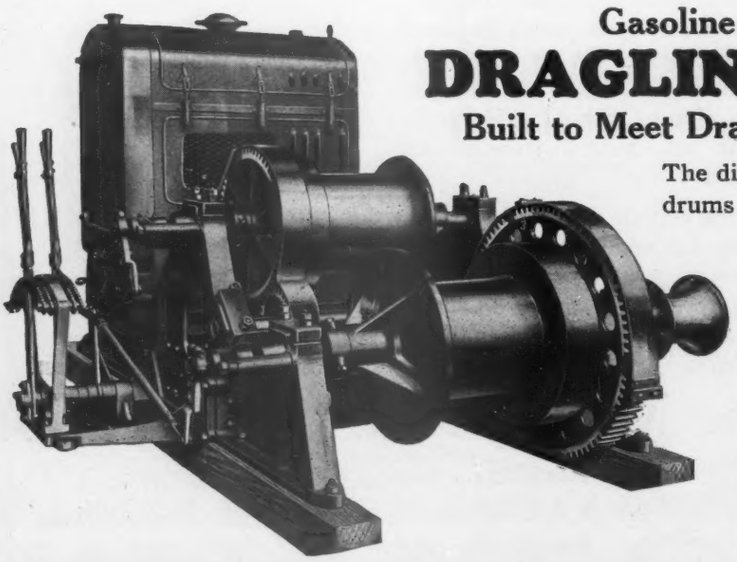


This Dragline Hoist is an efficient, easily-operated machine built for heavy, continuous service

Gasoline or Electric

DRAGLINE HOISTS

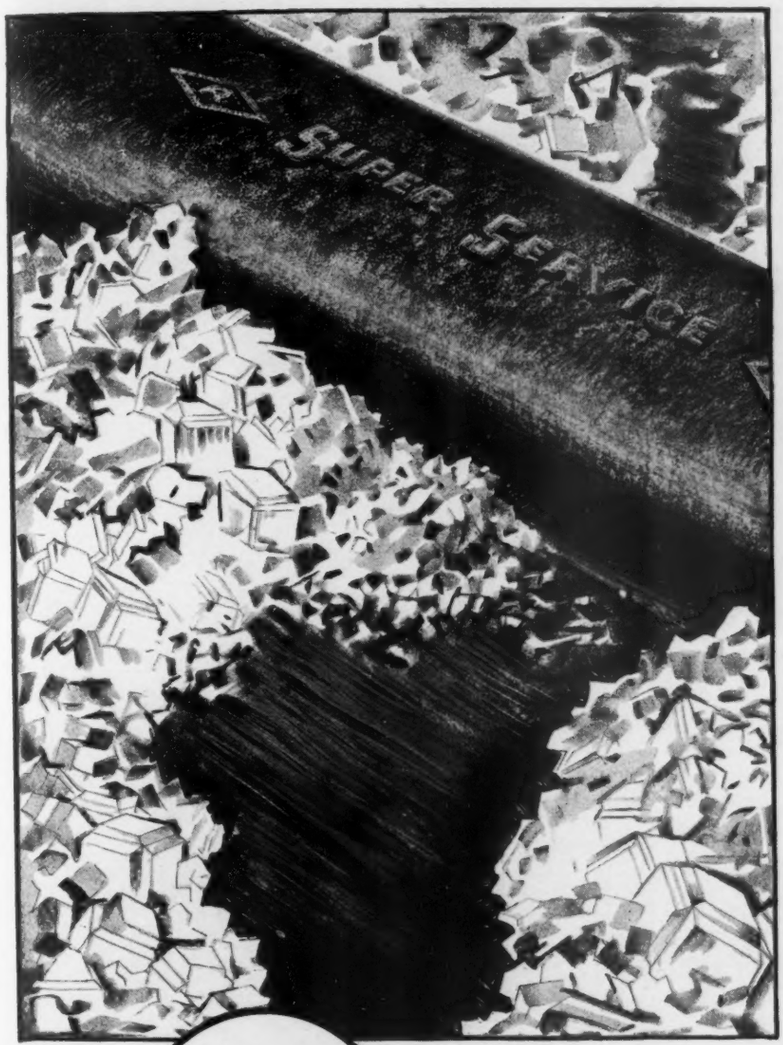
Built to Meet Dragline Requirements

The different speeds of upper and lower drums are obtained by different gear ratios, not by a small diameter lower drum. The larger drum gives the required pull without punishing the cable line which on smaller drums is notoriously short lived in dragline work. Rope jamming is eliminated by Special Brakes which prevent slack in the outgoing cable.

Bulletin 130 tells of Dragline-Slackline Hoists— Ask for it

HOISTING - HAULING - HANDLING

Salt is cleaner - but meaner than rock



SUPER SERVICE
CORDS and CABLES

Note how the vulcanizing condenses and toughens the rubber jacket.

WHEN you scrape a portable cable across sharp rocks, it's hard on the cable. But when you drag a cable across a salt face it is even harder.

The salt crystals break off, crumble, and act like sand paper. The air is full of salt dust. The cable is subjected to a constant alkaline action that tends to break down ordinary rubber.

And yet there are many lengths of Super Service in salt mines that keep on delivering the current month after month.

Vulcanizing Super Service in steel molds, under tons of pressure, compresses the outer jacket of rubber until it is dense, tough, and abrasion resistant to an astonishing degree.

You get a cable that wears, and wears, and wears, whether it is working in coal mines or elsewhere. A cable that makes the best kind of a partner for those expensive shovels that need continuous current to show the profit you want.

If you would like a practical demonstration of Super Service wearing qualities, get a length today and put it on your toughest job.

ROME WIRE COMPANY
DIVISION *of* GENERAL CABLE CORPORATION
Rome, New York

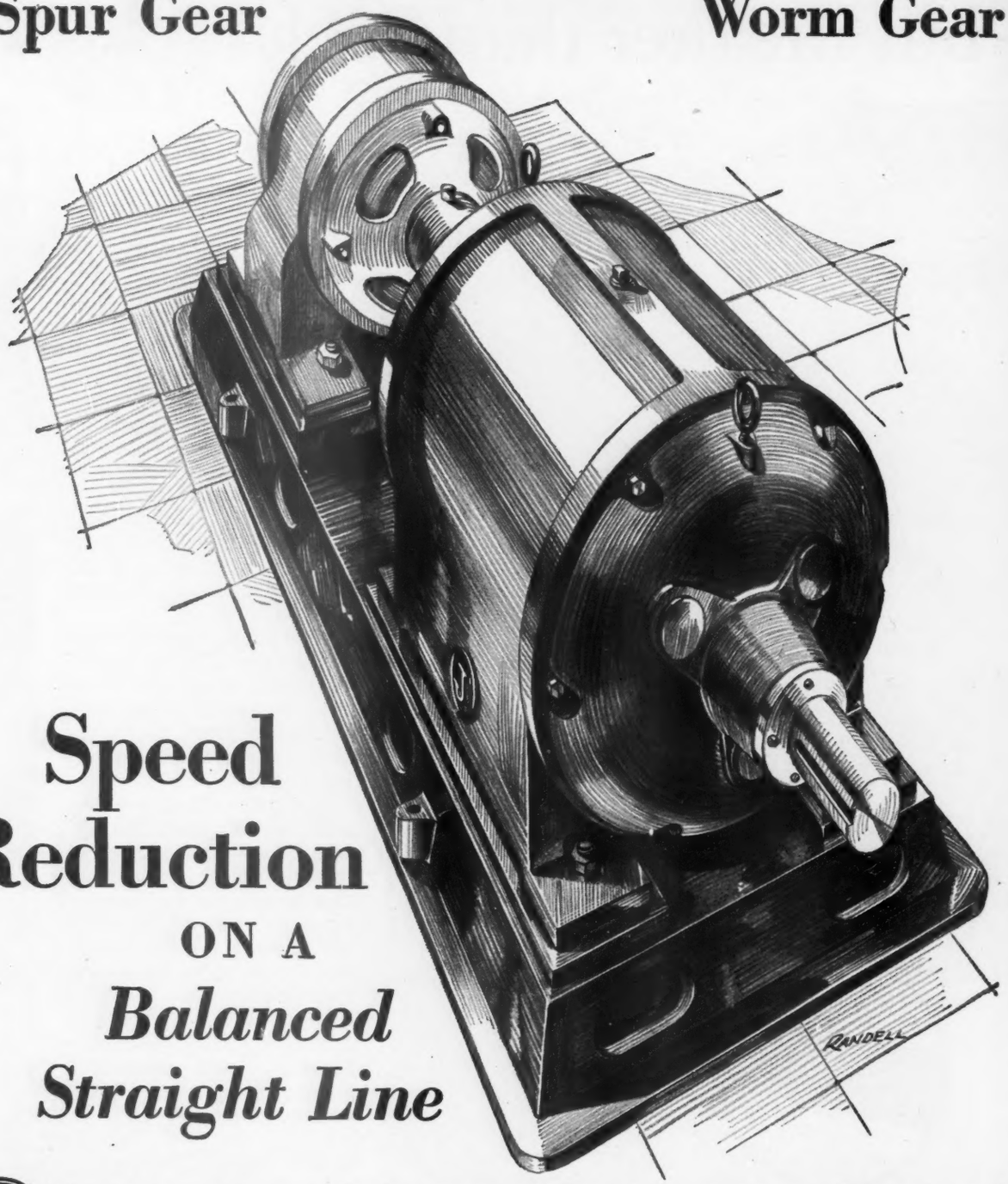
ROME WIRE

2842

FROM WIRE BAR TO FINISHED COPPER WIRE

Jones Speed Reducers

Spur Gear Worm Gear



Speed Reduction ON A *Balanced Straight Line*

Genuine power economy means the transmission of power in a direct line, wherever possible, from the high speed motor to the slower moving driven machines under ideal operating conditions. This the Jones Spur Gear Speed Reducer provides for. The motor shaft, high and low speed reducer shafts, and the shaft of the driven machine are all in the same straight line. The gears inside the dust-tight housing are perfectly lubricated in a bath of oil that remains pure. Improved design and few parts permit better construction and longer, carefree service. No attention is required other than occasional replenishing of the oil supply. You will find many installations of Jones Spur Gear Speed Reducers near you—and as many enthusiastic users. Write for Spur Gear Speed Reducer Catalogue Number 26.

W. A. JONES FOUNDRY & MACHINE COMPANY 4422 W. Roosevelt Road CHICAGO, ILLINOIS

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Air Separation in Cement Plants

Guarantees Uniformity of Product
Guarantees Fineness to any Specification
Increases Mill Output Lowers Cost of Cement

It is Cheaper to use Air than to add Mills

Satisfy yourself and your customers by Uniformity of Product

"Air is Free"
We make it work for YOU
at small cost

We control its
tremendous power to
your advantage

Air guarantees finenesses, evenness, and smoothness with almost no attendance or upkeep. This of course refers to

THE STURTEVANT WHIRLWIND CENTRIFUGAL SELECTORS

STURTEVANT MILL COMPANY

Harrison Square, Boston, Mass.

Continuous Kiln Operation Lowers Cost

Write for it today!

THE only shutdowns you have with Manitowoc Kilns are due to burning difficulties.

Send for Cement Bulletin --- it completely pictures and describes Manitowoc Cement Mill equipment.

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Manitowoc, Wisconsin

Cement Mill Equipment

Rotary Kilns
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Tube Mills
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Minogue Flue Dust Feeder
Moore Speed Cranes, Shovels and Draglines

MANITOWOC

When writing advertisers, please mention ROCK PRODUCTS

Relief from expensive GELATINS!

RELIEF from the use of expensive gelatins is dependent on the character of the ventilation and drainage of your mine and the pitch of your bore holes.

There is no positive relief if the ventilation and drainage are poor and if the bore holes pitch steeply upward.

The good fumes, water resistance and plasticity of the Gelatins, which these conditions demand, are not possessed by any other type of industrial explosives — nor can there be any substitution for them.

If your mine is well-ventilated and drained, and the bore holes are not steeper than 45°, or if you are content to use clay stemming in the steeply-inclined bore holes, use of our GICODYNS will affect worthwhile economies in blasting costs.

The GICODYNS of varying strengths and velocities will run 40 to 50 per cent *more* cartridges per cwt. than the gelatins. Where their use has been found adaptable, the GICODYNS have shot on approximately a cartridge-for-cartridge basis with the gelatins.

If you feel conditions will permit their use, we suggest you give the GICODYNS a trial. Our experts, who have had extensive experience in their application, are available always for any help you may need in determining the adaptability of the GICODYNS to the job you have in mind.

The Giant Powder Company, Con.

"Everything for Blasting"

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San Francisco, Calif.

Branch Offices:
Butte, Montana
Los Angeles, California
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GIANT

Branch Offices:
Salt Lake City, Utah
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No longer does the shifting of track cause worry in this quarry

Where narrow gauge track is used

For those who maintain narrow gauge track, the new Model "O" is now available. This can be furnished for gauges from 36 to 48 inches. This inexpensive machine will soon return its first cost out of labor savings.

IN many quarries the shifting of track is a source of worry. It interferes with other operations; it is a big item of labor expense. The Ingalls Stone Company, of Bedford, Indiana, has ended such worries for all time at its Romona quarry by the purchase of a Nordberg Track Shifter. The overburden on the dump was clay, so sticky that it was necessary to spread straw in the cars in order to dump this material. Some of this straw can be seen on the ends of the ties. Shifting this track was a difficult job, yet the Track Shifter did it easily. This is not an unusual case. Others using it for track shifting and raising jobs report similar performances.

Why continue shifting track by expensive hand methods? The Track Shifter will save you money. Write for Bulletin KS-8.

Nordberg Mfg. Co., Milwaukee, Wis.

THE NORDBERG PATENTED TRACK SHIFTER

The "S-A" BELT CONVEYOR

A Master Labor Saver

S-A Belt Conveyor installation. Sand from the Michigan dunes is stored and loaded into freight boats at the rate of 1200 tons per hour.

It would be almost impossible to move by hand methods the enormous tonnages now carried by S-A Belt Conveyors.

Even if it were practicable it is not necessary to figure the cost to see that the belt conveyor is a real time, labor and money saver.

The S-A Belt Conveyor is comparatively low in first cost. Given proper attention the maintenance costs are low and the life long.

Realizing the importance of the carriers or idlers upon which the belt runs, S-A Engineers are constantly on the alert to improve design. By the use of anti-friction bearings and careful design they have reached the point where conveyor systems several miles long are not only more satisfactory, but much more economical than the old system of transportation in cars.

Write the nearest S-A Branch. Our Engineers will give detailed information about belt conveyors, elevators, screens or complete screening and washing plants for stone or gravel.

DESIGNERS AND BUILDERS OF LABOR SAVING MATERIAL HANDLING MACHINERY

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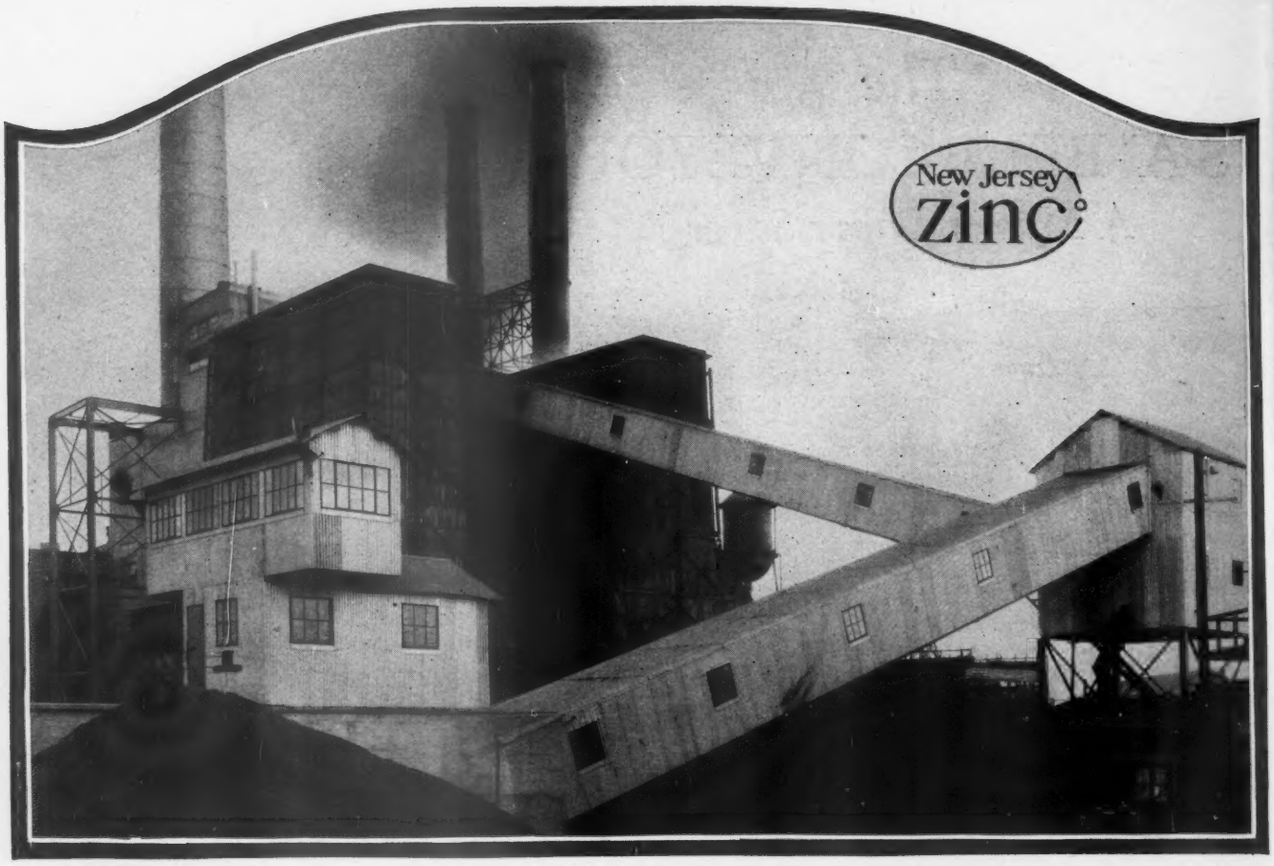

Typical buildings in the cement and other branches of the rock products industry which may be constructed of Corrugated Sheet Zinc:

Rock Storage
Crusher Buildings
Power Plants
Mill Buildings
Bag Houses
Conveyor Galleries
Powder Magazines
Warehouses
Machine Shops
Car Repair Shops

Install Corrugated Sheet Zinc Roofing and Siding—and You Stop Paying Out Money for Repairs and Replacement

If expenditures for upkeep were figured into every roofing and siding contract, engineers would soon discover the fallacy of specifying materials of temporary life.

But such calculation is rarely attempted—repairs and replacement are accepted as inevitable and the maintenance charges continue to grow alarmingly.

This condition need not prevail at most industrial plants. Many modern plants are eliminating maintenance charges for roofing and siding by specifying Corrugated Sheet Zinc. They know that Zinc cannot rust—that repair and replacement need never be thought of—that the first cost is the last expense.

The natural surface oxidation of Corrugated Sheet Zinc makes it self-protecting for all time. It is the most economical metal you can use for roofing and siding.

The whole story of Corrugated Sheet Zinc Roofing and Siding is told in our Specification Book. It will pay you to read it. Send the coupon for your copy today.

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Send me information on the use of Corrugated Sheet Zinc for roofing and siding for:

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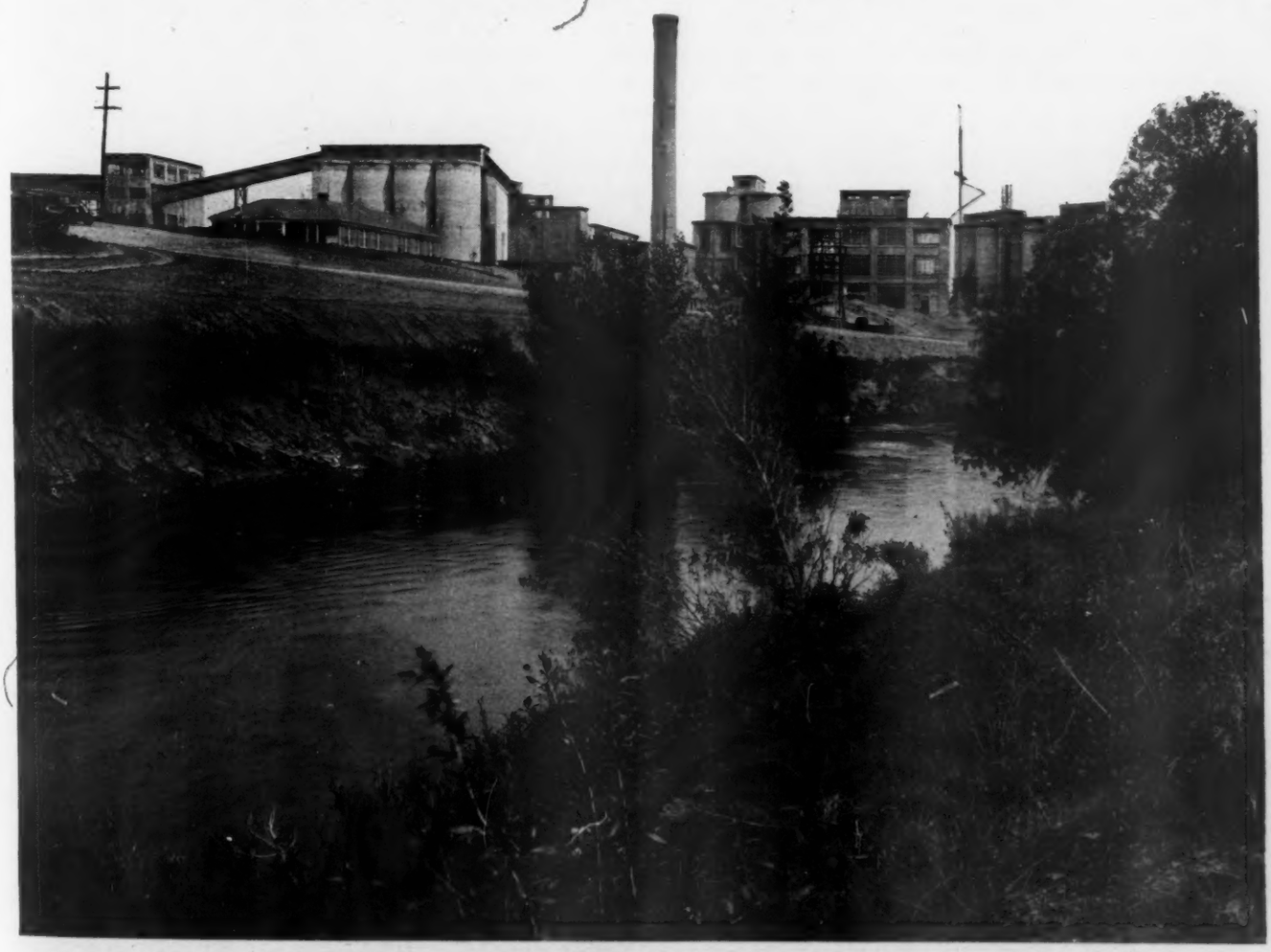
Rock Products
CEMENT and ENGINEERING NEWS

Volume XXXI | Chicago, June 23, 1928 | Number 13

The World's Most Up-to-Date Dry-Process Cement Plant

Colorado Portland Cement Company's New Plant at Boettcher, Colorado, Has Many New and Unusual Features



Not a bad setting for a cement plant, or any other industrial plant in the irrigated state of Colorado—The new Colorado Portland Cement Co. plant at Boettcher Colo.

Colorado Portland Cement Company New Dry Process Plant

Boettcher, Colo., Plant Proof That a Dry Plant Can Be Built to Have All the Advantages of the Wet-Process Plant

By Paul C. Van Zandt, Chief Engineer
Colorado Portland Cement Co., Denver, Colo.

THIS is a 3500-bbl. dry-process plant using calcareous shales for raw material, natural gas for fuel and waste heat for power; located seven miles from Fort Collins, Colo., on the eastern slope of the Rockies.

The most interesting feature about this plant is the use of the dry process. It is one of the ten plants of the Ideal Cement Co., of Denver. The others are:

The Colorado Portland Cement Co., Portland, Colo. (Dry process)
The United States Portland Cement Co., Concrete, Colo. (Dry process)
The Union Portland Cement Co., Devil's Slide, Utah (Dry process)
The Three Forks Portland Cement Co., Trident, Mont. (Dry process)
Hanover, Mont. (Wet process)
The Nebraska Cement Co., Superior, Neb. (Wet process)
The Oklahoma Portland Cement Co., Ada, Okla. (1 Dry process) (1 Wet process)
The Arkansas Portland Cement Co., Saratoga, Ark. (Wet process building)

There has been such a tendency to build all new plants in recent years wet-process that most of the existing dry process plants in the United States are old and do not possess the most modern equipment; hence a comparison between the two processes usually resolves itself into a comparison between *old* (dry) plants and *new* (wet) plants, the new plants being better and making better cement primarily because they are new, not because they are wet.

The Ideal Cement Co. possesses four modern wet-process plants, and one, when completed, in Arkansas will be newer than the Boettcher dry-process plant. Likewise, this company already had five efficient dry-process plants and all the comparative data necessary to decide the process of the Boettcher plant without prejudice.

The Boettcher plant is the most modern dry-process plant to date, designed to produce (and does produce) a cement of the highest possible quality and of absolute uniformity, which cannot be exceeded by any wet process.

Reasons for Selecting Dry Process

The plant itself is built of reinforced concrete throughout and is an example of the proper use of the product it now manufactures. The dry process was decided upon for the following reasons:

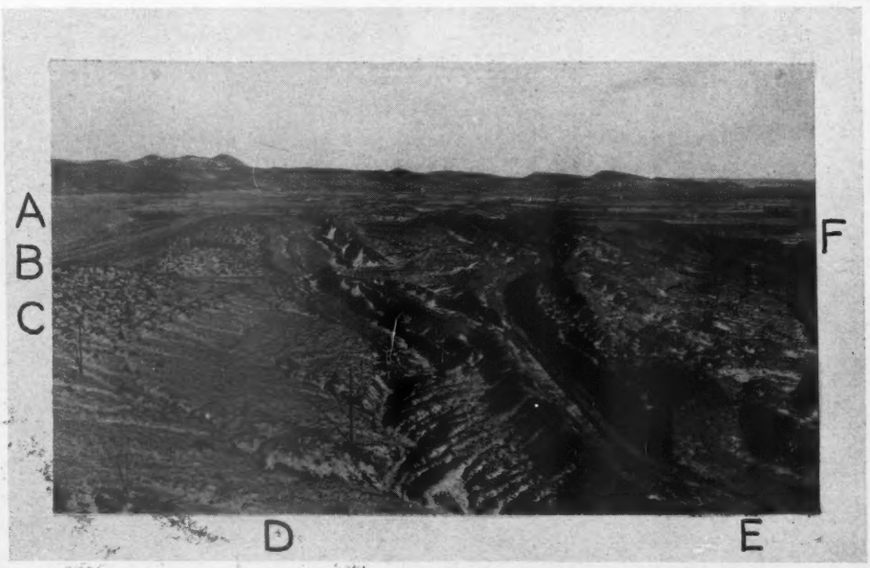
(1) Water is scarce and costly and badly needed for irrigation in the fertile Poudre River valley farm lands.

(2) Greater fuel economy than is possible in the wet process was considered necessary and 1,000,000 B.t.u. per bbl. of cement produced was the mark set (and reached).

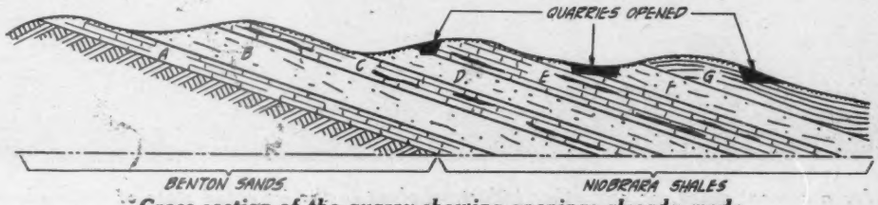
(3) It was believed that the materials would "ring" badly in the wet process; while by the dry process clinker rings are practically eliminated, and a high capacity is obtained, even when burning a high lime clinker.

(4) The raw materials are so close to mix that the modern blending tanks maintain a uniformity in the kiln feed composition as perfect as it could be in the wet process; thereby obtaining the one great advantage of the wet process without any of its disadvantages.

(5) Cement of the highest quality has been made from the same materials, the Niobrara shales, by the same company by the dry process at Portland, Colo., for over 25 years, so this process has been thoroughly demonstrated and the quality proven for a long period of time.



General view of the quarry from which both limestone and shale are obtained



Cross-section of the quarry showing openings already made

Source of Raw Materials

Sufficient raw materials to make a hundred million barrels of cement is available on the company's property immediately adjacent to the plant. The strata outcrop just west of the crushing plant and dip east at an angle of 18 to 20 deg., extending deep under it. Only the outcrop to a depth of

Electric shovel in quarry, Colorado Portland Cement Co., Boettcher, Colo.

60 ft. has been considered as available in the above estimate and this is quarried in an open face.

There are four ledges of high-lime shale, running mix or above, and the low-lime shales are between. Ledge *A* (accompanying view) is nearly pure limestone; ledge *B* is calcareous shale running 55 to 60% calcium carbonate; ledge *C* is high calcareous shale, running 75 to 88% calcium carbonate; ledge *D* and ledge *F* correspond to ledge *B*, constituting a calcareous shale running under mix in calcium carbonate content. Ledge *E* is high, the same as *C*; ledge *G* is also high, and is yellow in color, due to the presence of more iron than any of the other ledges. The reader will see on the drawing that the quarry is like layer cake, each alternate layer being above or below mix, respectively. We are quarrying *E*, *F* and *G* now to make our mix.

The upper or western sides of ledges *E* and *G* are quarried for high shales and on lower *E* the low shale is obtained. The quarry equipment consists of two Armstrong well drills, gasoline-driven, one Marion "70" steam shovel on crawlers, and one Bucyrus 125B full revolving high lift shovel, electrically driven, with Ward-Leonard control.

The material is loaded into Easton 11-yd., all-steel, pan-type quarry cars, which are hauled to the crusher by two steam locomotives, all standard gage.

A certain amount of low-lime shale was stripped from ledges *A* and *E* during the period of plant construction uncovering several years' supply of high-lime shale.

Crushing Plant

The crushing plant is equipped with an Allis-Chalmers Fairmount roll crusher, 36 x 60 in., driven by a 150-hp. Westinghouse motor. (All motors and electrical equipment are Westinghouse.) The crushed shale is elevated from the crusher to a storage bin by an Allis-Chalmers 42-in. inclined pan elevator, driven by a 50-hp. motor. The material is fed from this bin by a Stephens-Adamson apron feeder to a No. 9 Williams mill, driven by a 250-hp. motor; the bin providing a continuous feed to the Williams mill, storing the heavy intermittent charges of rock delivered to it by the Fairmount crusher.

The Williams mill product is elevated and conveyed to eight 25-ft. by 65-ft. rock storage tanks, from which the mix is made. This product is accurately sampled en route to storage by two Vizen and one Allis-Chalmers Bridgeman sampler, making five cuts to a 50-lb. sample per 250 tons of rock. The rock going to storage passes over a Merrick "Weightometer," so both the quantity and the composition of rock in each storage tank are accurately determined.

The quarry and crushing operation is six days a week, eight hours a day. From the storage tanks on the process is continuous, 24 hours a day.

Making the Raw Mix—Grinding

The mix is made by drawing the shale from two or more storage tanks simultaneously by Schaeffer "Poidometers" and delivering the crushed shale to a drag which carries it to the dryer feed elevator. There are two Traylor rotary dryers, 7½ ft. by 70 ft., pitched ¾-in. to the foot, running 1 to 7/10 r.p.m., driven by 30-hp. motors through Cleveland gear reducers (all gear reducers throughout the plant are Cleveland). The dryers are gas-fired.

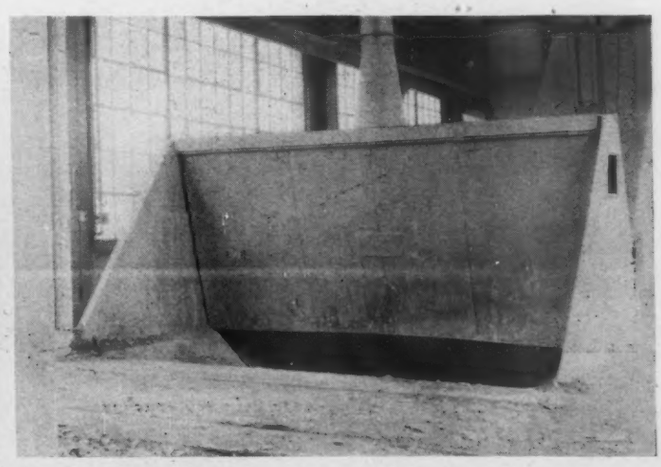
The dried rock is elevated into the raw grinding mill feed tanks. All elevators have concrete housings and are standardized with No. 847 Link-Belt chain. The drags are Bethlehem 14-in. manganese steel chain in concrete housings.

There are five Traylor compartment grinding mills, each 8 ft. by 25 ft., all in one mill building. Three are raw mills and two are for clinker, although the middle mill can be used on either side. The feed tanks are concrete, of 140 tons capacity each. The drive shafts extend into a motor room, and each mill is driven by a Westinghouse 600-hp. clutch-type, synchronous motor of 2300 v. The high-tension equipment is all in a room on the ground floor below the motors, and the starting panels on the motor floor are grouped into a six-panel, dead-front, Westinghouse switchboard. There is a 10-ton Milwaukee electric crane over the mills and a 5-ton Armington hand crane over the motors.

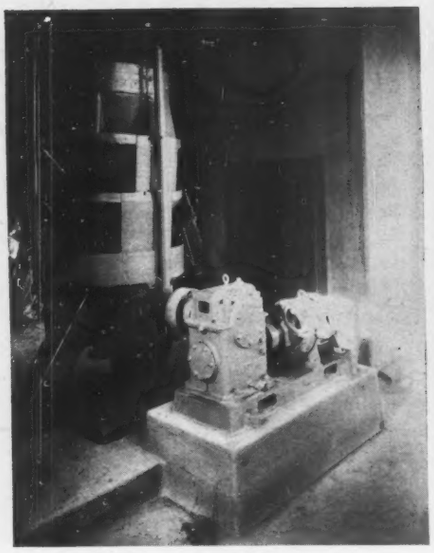
Raw Material Blending

The product from the raw mills is con-

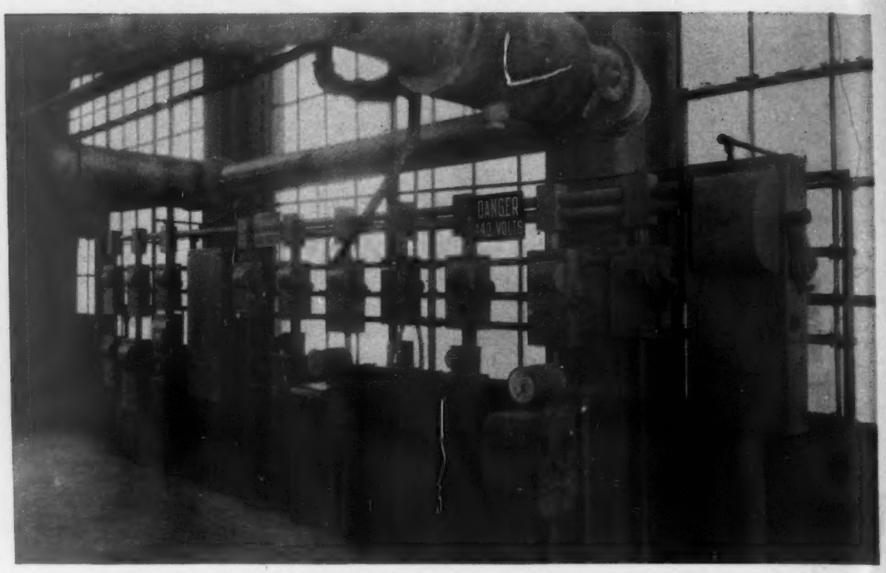
Type of all-steel quarry cars used



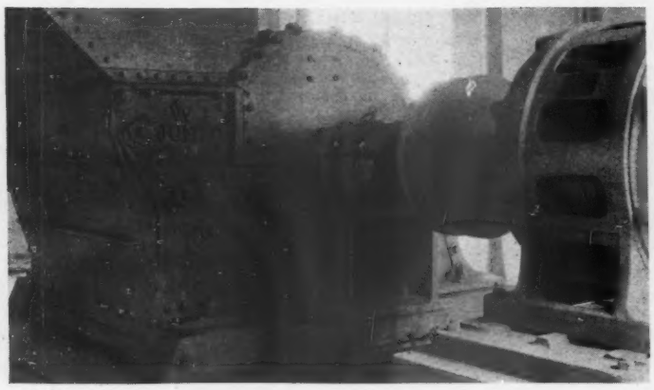
Mouth of primary breaker with dust collector



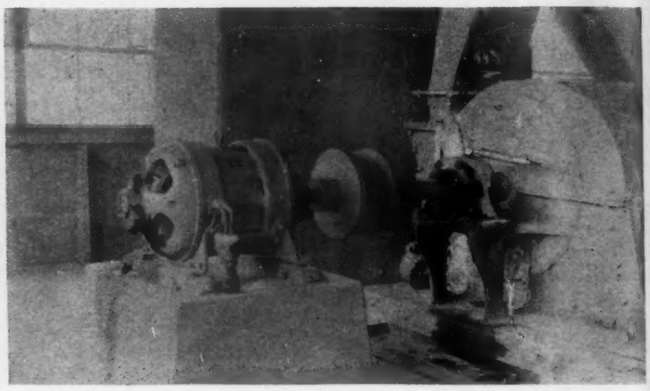
Bridgeman raw material sampler



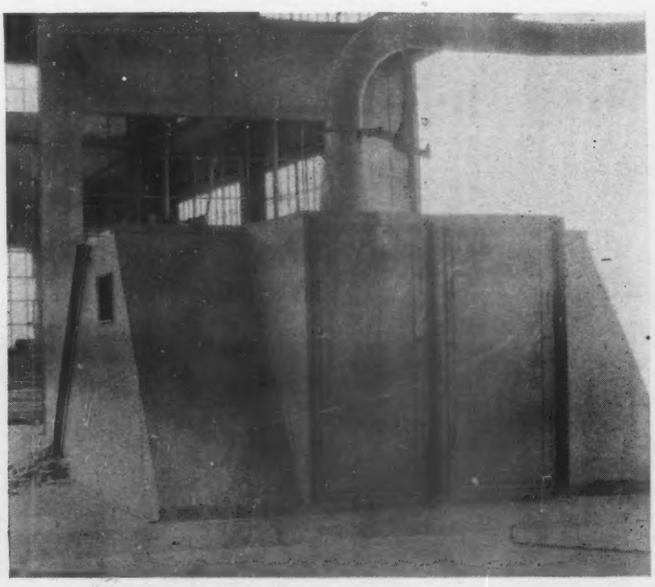
Switch rack in rock dryer building—typical of electrical equipment of the plant



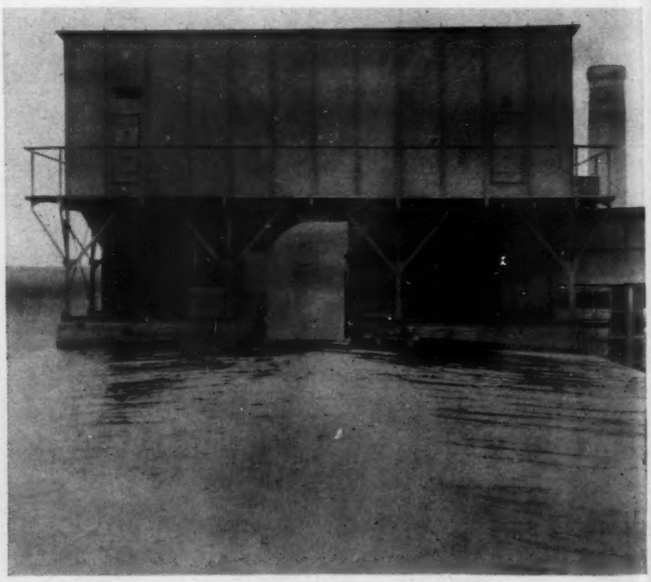
Secondary crusher direct-connected to motor



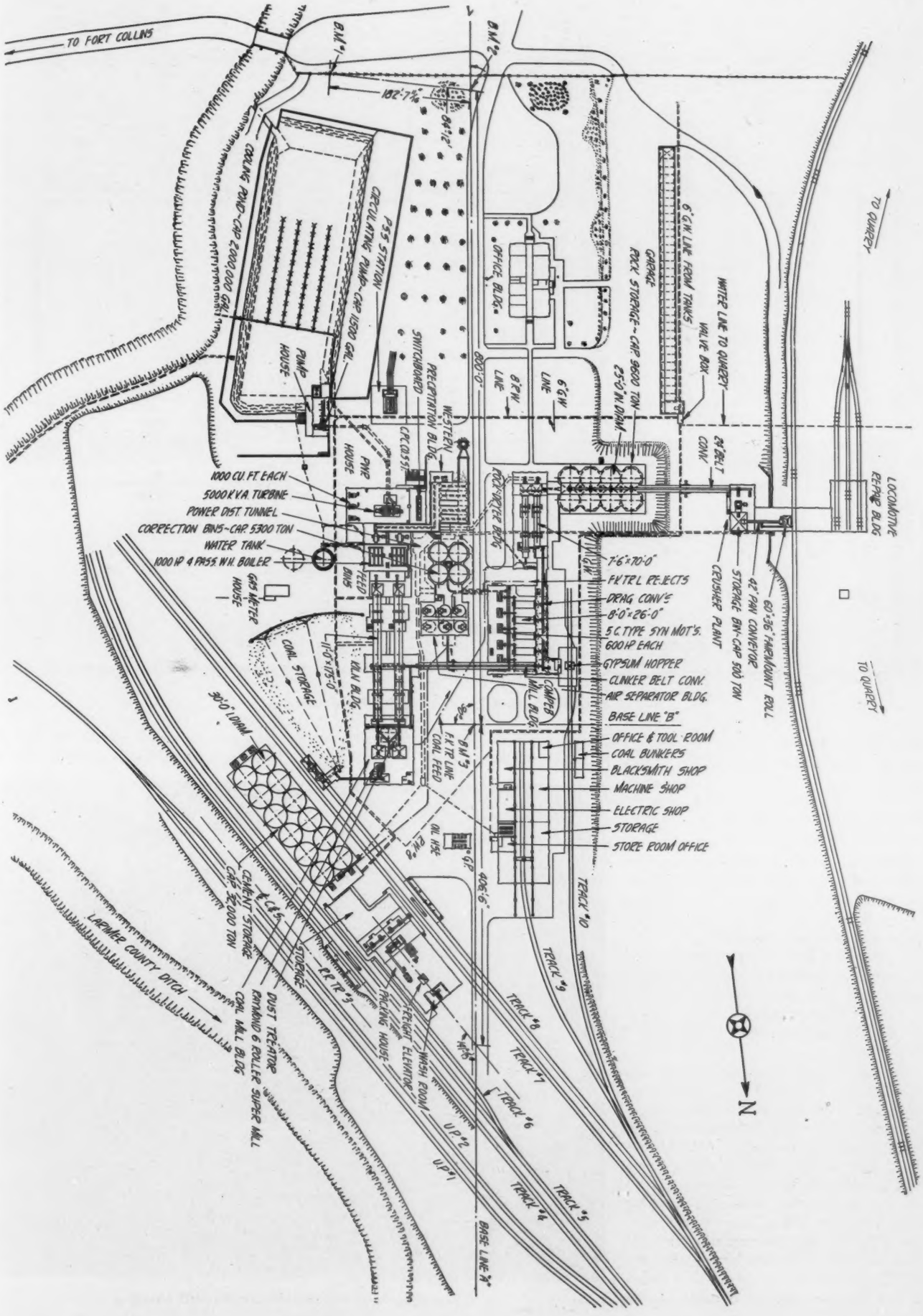
Sampler mill and motor drive



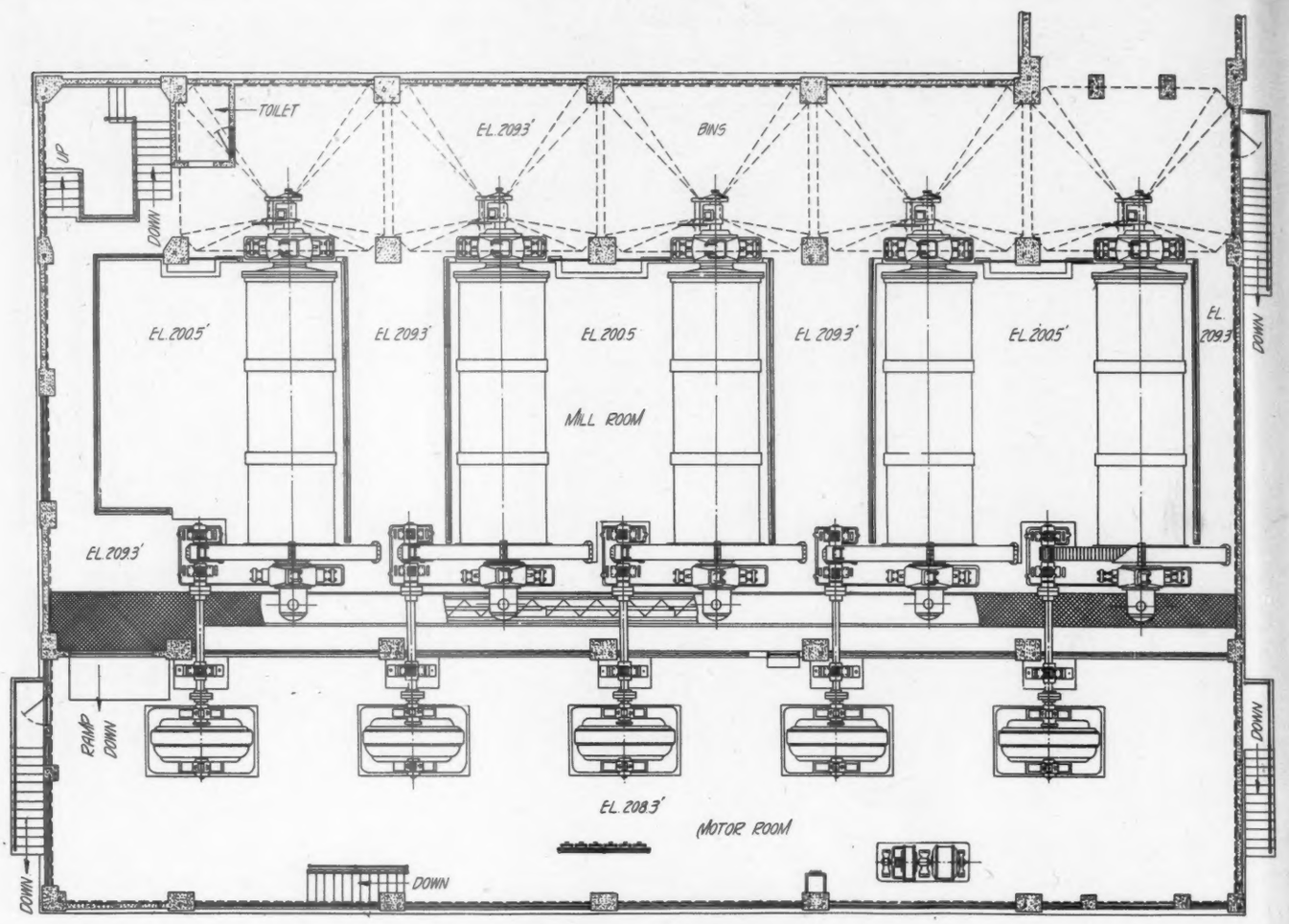
Dust collector housing over primary crusher



Dust collector installation in crushing plant



General plan of the plant of the Colorado Portland Cement Co. at Boettcher, Colo.



Plan of the mill building and motor drives

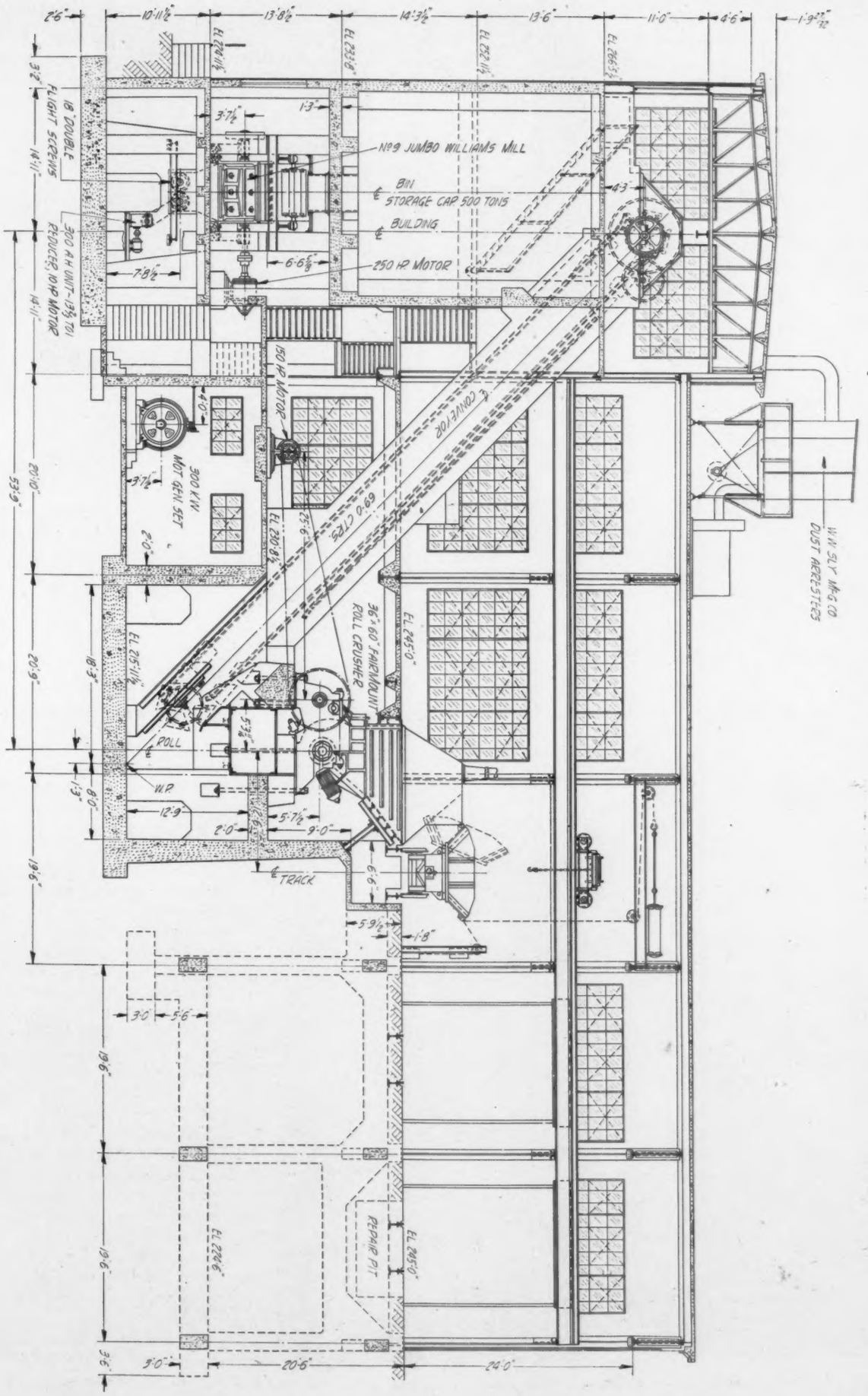
veyed by a screw conveyor to a 10-in. Fuller-Kinyon pump, driven by a 60-hp. motor, which delivers the material to three 14-ft. Sturtevant air separators in a separate building. The material can be by-passed direct to the blending tanks if desired.

There are five air separators in the separator building, three for raw, driven by one 100-hp. motor, and two for cement, driven by one 50-hp. motor. The fine product from the raw separators is delivered to the blending tanks by a 10-in. Fuller-Kinyon pump; the rejects are returned to the raw mill feed tanks by an 8-in. pump; and between them is a spare 10-in. pump for either service. All three pumps are driven by 50-hp. motors.

The raw material is automatically switched in rotation by a Fuller-Kinyon electric control board to the four 25-ft. by 65-ft. blending tanks which are maintained at different levels, averaging two-thirds full. Underneath each blending tank is a 6-in. pump with a 30-hp. motor. In normal operation all four are running constantly, removing more than twice kiln capacity of raw material. This is also automatically switched from the kiln feed tanks (when they are full) back into the same tanks in rotation, so that the most effective blending possible is constantly going on, and the hour-to-hour variation of the raw mix is blended out.

An example of the possible blending follows: Suppose an hour's error of x in raw

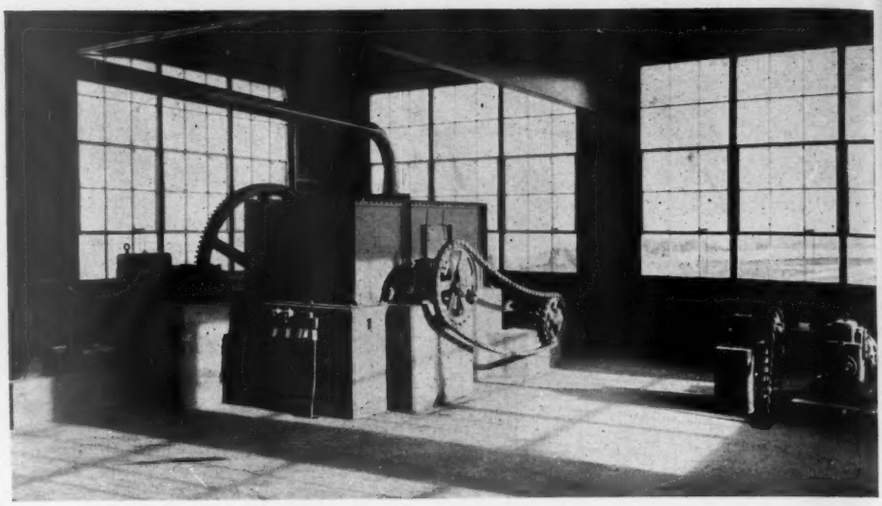
General view of the interior of the mill building



Cross-section through the crushing plant showing details of dust-collecting equipment on primary crusher

mix composition goes to Dryer No. 1. Then product from both dryers contains $\frac{x}{2}$ error. The product from three raw mills contains $\frac{x}{6}$ error. The product from four blending tanks contains $\frac{x}{24}$ error. But kiln feed is diluted by recirculation to $\frac{x}{48}$ error; so that the blending reduces the error to 1/48th, and if this error were 2% originally, it becomes 1/24th of 1% in the kiln feed, without allowing for the further reduction through the separators which would make the error but 1/72 of 1%.

In actual practice and normal operation the mix control is so close that no error is discernible in the kiln feed day after day.



Elevator (36-in.) and sampler drive, 30-hp., 870 r.p.m., 9-3/4 to 1 ratio; sampler elevator (14-in.), 7-1/2-hp., 870 r.p.m., 24-1/2 to 1 reduction

Kiln Department

There are two Traylor rotary kilns 11 ft. in diameter by 175 ft. long, pitched ½ in. to the foot, driven by a 75-hp. variable speed motor each, at a maximum of five minutes to a minimum of one and one-half minutes per revolution. Kiln No. 1 is lined with 3 in. of "Sil-O-Cel" except for 50 ft. at the burning end. These kilns have a capacity up to 2000 bbl. each per 24 hours, with a 67% CaO clinker, and are fired by natural gas.

The plant is equipped with a single 6-roller Raymond "Super" coal mill, without a dryer, which was used for two months at the beginning of operation of the plant, before gas was available. The mill drew hot air from the coolers and delivered perfectly dry powdered coal to the burners.

Motor room of the grinding plant

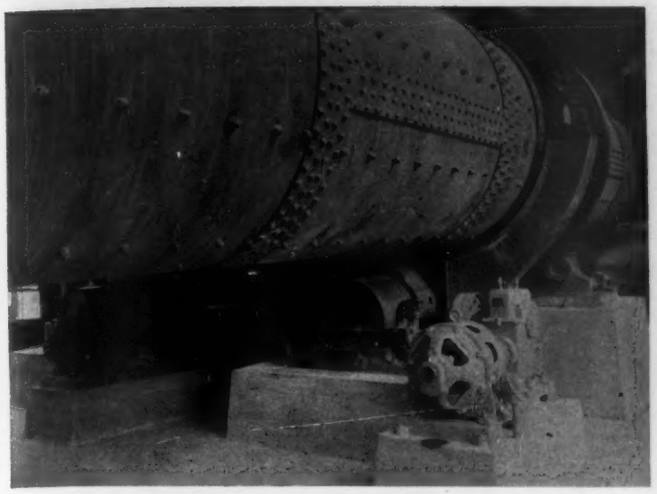
Clinker Handling

The clinker drops into two 7½- by 70-ft. Traylor coolers, each with a 30-hp. motor, and the cooled clinker is sent to the grinding mills through a Richardson automatic scale, and over a 24-in. belt conveyor.

Cold air is blown into the discharge end of the coolers by a Sturtevant, double-inlet fan driven by a 15-hp. motor and an Allis-Chalmers "Tex-Rope" drive. The heated air leaving the coolers enters a dust chamber under the burning platform, which is designed for Cottrell electrical precipitation collectors, should these be necessary to keep the clinker dust out of the fans for combustion air, which is drawn from this chamber. To date the fan runners do not show signs of wear and the Cottrell equipment has not yet been installed.

This dust chamber is provided with Bethlehem drags to return the clinker dust to the cooler discharge, and the hot clinker can by-pass the coolers by these drags and be delivered to a storage pile outside the building without reaching the clinker scale and belt. It can be reclaimed (when cool enough not to burn the belt) by one of the drags and sent over the scales and belt when desired.

The hot air from the cooler dust chamber is normally from 400 deg. to 475 deg. F., and is used in the fans supplying air for



Rotary dryers, 7-1/2x70 ft., 30-hp., 870 r.p.m., 9-3/4 to 1 reduction

Inclined screw conveyors under main collecting flues, waste-heat system, 7-1/2-hp., 870 r.p.m., 24-1/2 to 1 reduction

combustion of gas to the kilns. There is also an outlet to the coal mill which was used when burning coal, and there is a relief stack with damper to the outside air. The complete housing of kilns and coolers with air seals on the hood and feed end of the kiln and both ends of the cooler together with ample fan capacity for combustion air has enabled this plant to obtain remarkable fuel economies. The actual data on both coal and gas combustion checks very closely with the theoretical calculations and almost exactly the same number of B.t.u. are required for either fuel per barrel of clinker burned.

Finish Grinding

The clinker scales are electrically connected to an automatic adjustable gypsum feeder (motor-driven) which is tripped each time the scales dump. The "dose" of gypsum is drawn from a concrete storage bin back of the No. 5 mill, and is elevated and delivered to the clinker stream at the head of the conveyor.

The clinker mills deliver their product to an 8-in. Fuller-Kinyon pump driven by a 125-hp. motor (or a 6-in. spare pump) which sends it to the cement silos direct, or to the two finish air separators. The fines from the separators are sent to the silos by an 8-in. pump driven by a 125-hp. motor, and the rejects are returned to the mills by a 6-in. pump with a 50-hp. motor. An 8-in. pump between the two is a spare for either. It is possible to make a product 99% passing 200-mesh with this equipment.

The cement storage silos are twelve in number with five interstices. The round tanks are 30 ft. in diameter by 80 ft. high with 8-in. walls. The foundations are spread 5 ft. wider than the 63½-ft. over-all width of the silos to reduce soil bearing to a

General view of kilns and coolers during construction

Turbine room from gallery showing air compressors

Interior of power house showing steam turbines

minimum, and have not settled. The tanks proper were poured in slip forms in exactly seven days of 24 hours each, continuous pouring.

Flow of Cement Automatically Controlled

The cement is delivered from the Fuller-Kinyon transport line into each tank in rotation, automatically, or as desired by an operator through an electrically-operated control board located on the ground floor.

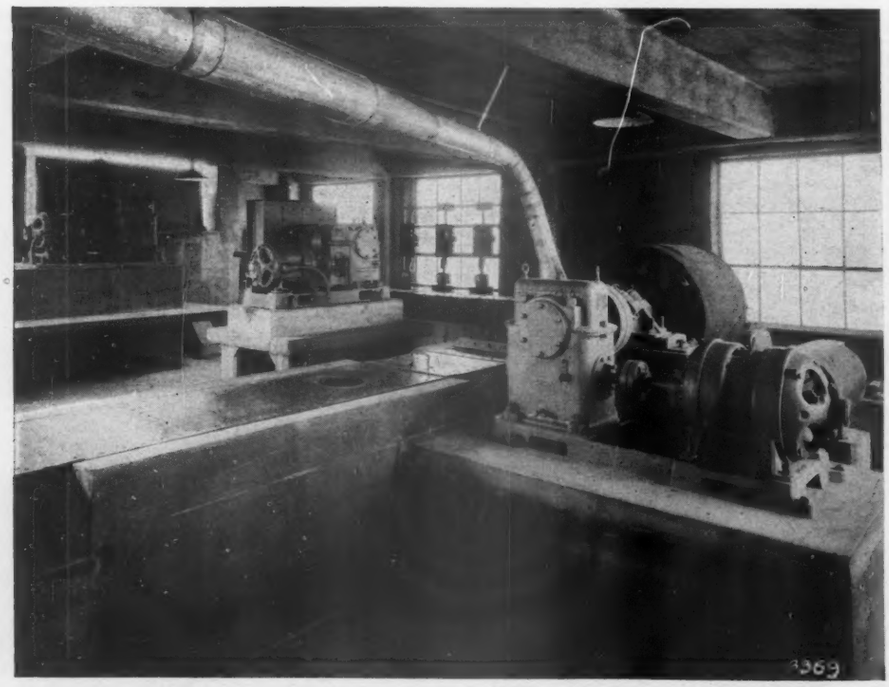
Two 8-in. portable Fuller-Kinyon pumps mounted on trucks running on rails the length of the silos are used to withdraw the cement from storage and deliver it to the packing bins. Each pump is driven by a 100-hp. motor, and delivers to a separate transport line to four packers, with an automatic control board to switch the stream to each packing bin in rotation. If one packer should not be in use the valve is automatically closed to its feed bin, when this is full, and distribution continues to the others until all are full. This feature of control applies to all the automatic control boards.

Packing Plant

The packing plant is equipped with four 3-tube Bates packers in one row, two delivering to one railroad track and two to the other, on opposite sides of the packhouse. Storage space is provided "up track" from the packers for plaster, lime, plaster board, and waterproof cement, which is loaded in mixed cars.

The sack-handling plant is adjacent to the packers, and returned sacks are counted before cleaning on down draft, air-swept tables on the track floor, conveyed to a Bates continuous bag cleaner, made by Vulcan Iron Works Co., Denver. The cleaned sacks are sorted, mended and tied in another room. Tied sacks are stored on an upper floor and new sacks in the basement.

The packing room, sack handling rooms and sack cleaner, raw and clinker-grinding plant and crushing plant are each provided with a Sly dust collecting system.



Compeb mill building, Colorado Portland Cement Co. plant, Boettcher, Colo. Left, 18-in gypsum elevator, 10-hp., 870 r.p.m., 24-1/2 to 1 ratio; center, 6-in. gypsum elevator and screw conveyor, 7-1/2-h.p., 870 r.p.m., 14-1/2 to 1 reduction; right, conveyor belt for clinker, 10-hp., 870 r.p.m., 24-1/2 to 1 reduction

Waste-Heat Plant

The waste gases leaving the kilns pass down through slots in an arch into a common flue and from this into two Edge Moor waste-heat boilers of 11,000 sq. ft. heating surface each, equipped with Foster superheaters and economizers, and Copes boiler feed regulators. The gases are drawn through the boilers by two Green induced-draft fans, driven by 200-hp. variable speed motors. The controls for these fans, kiln motors, kiln feed, coolers, cooler fan and combustion fans are all on the burning platform under the charge of the burners.

The gases leaving the induced-draft fans enter a Cottrell dust precipitator, of the "graded resistance" type, and the clean gases pass out through a 12-ft. by 150-ft. Rust concrete chimney.

Steam is generated at 225-lb. pressure and 150 deg. F. superheat.

The power plant contains a 6250-k.v.a. Westinghouse turbo-generator. The electric current is generated at 3-phase, 60-cycle, 2300-v., 100% power factor. There is a 10-ton Whiting electric crane over the turbine room. All motors under 40-hp. are 440-v., and the lighting is 110-v., alternating cur-

rent. The condenser is Westinghouse, 8500-sq. ft. surface type. The circulating pump is also Westinghouse, 11,500 gal. per min., centrifugal, driven by a 250-hp. motor. It supplies head for 220 Binks spray nozzles in the cooling pond.

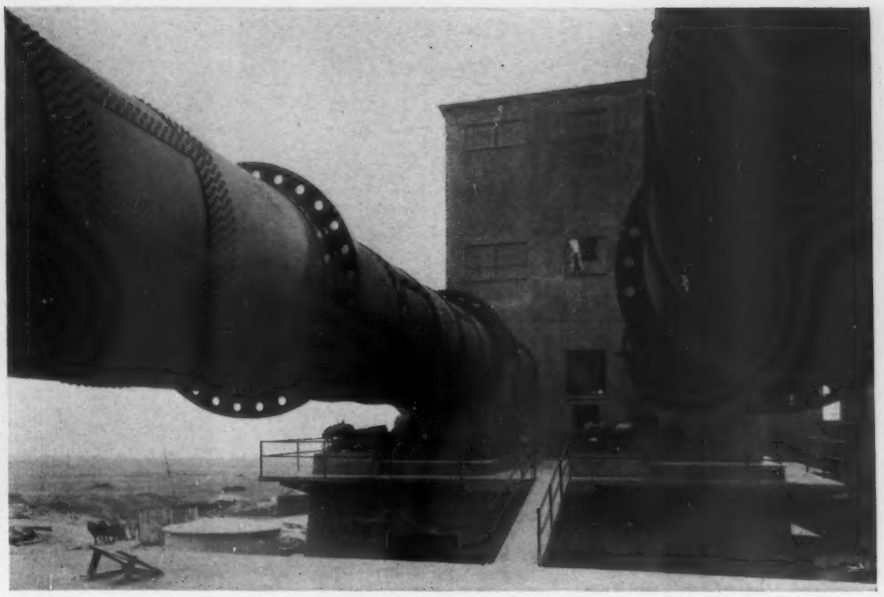
The generator air cooler is a Griscome-Russell "U-fin," four-pass cooler, using cooling water from the pond.

The feed-water heater is an Elliott de-aerating, open-type heater supplied with steam from the feed pump exhaust, and also with bleeder steam from the turbine, admitted through an automatic valve regulated by a thermostat in the heater vent pipe.

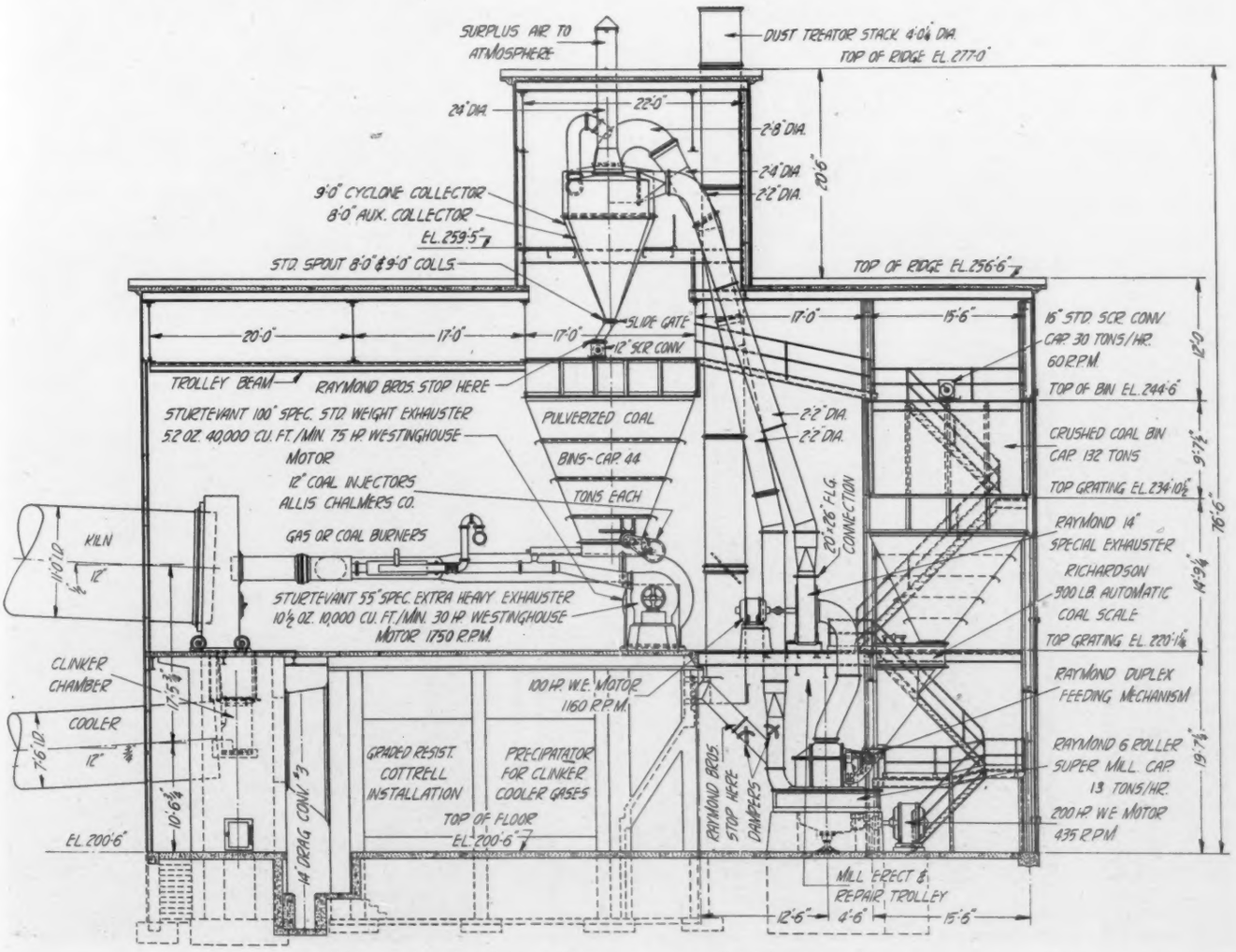
The boiler-feed pumps are two Cameron 2½-in. 3-stage centrifugal pumps, direct-connected to Terry steam turbines, operating automatically with the Copes regulators.

The boilers are each provided with an Edge Moor panel containing Brown recording and indicating draft gages, pyrometers, steam flow meters and water and steam thermometers and a boiler feed water pressure gauge common to both.

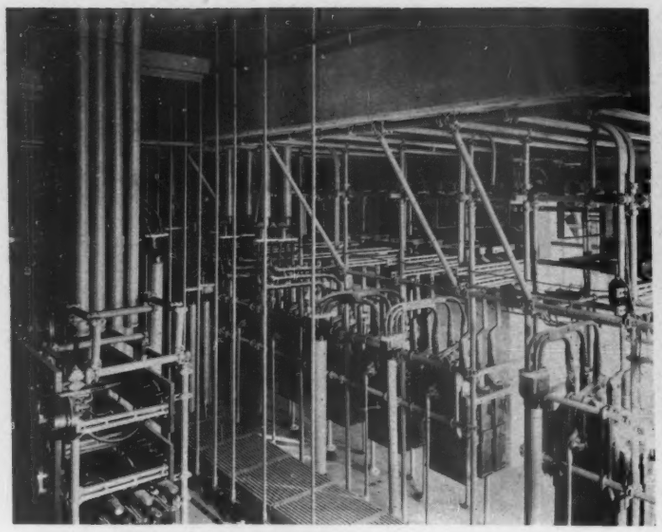
Power-house machines, piping and all exposed conduit are painted according to a schedule for identification: turbine and generator, green; condensate pump and piping, blue; circulating water pump, motor and piping system, green; oil cooler and all oil piping, bronze yellow; colling-water piping, green; high pressure steam lines, white;



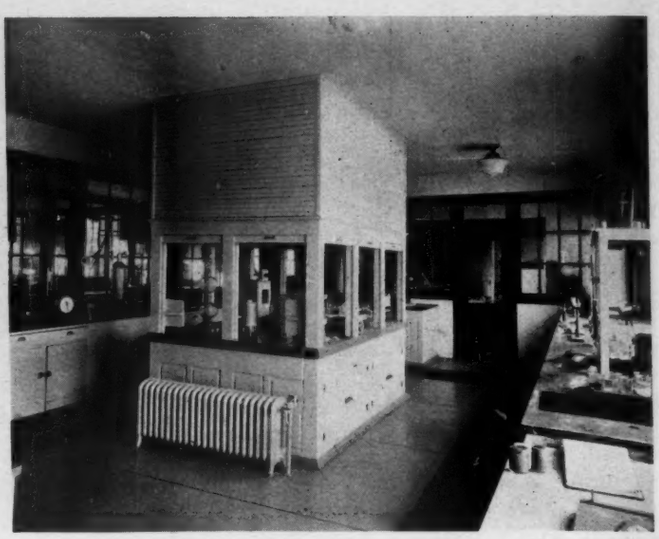
Kilns and motor drives—kilns are not covered at this plant



Elevation of coal mill building showing also kiln burner equipment



Power-house, oil-circuit-breaker room

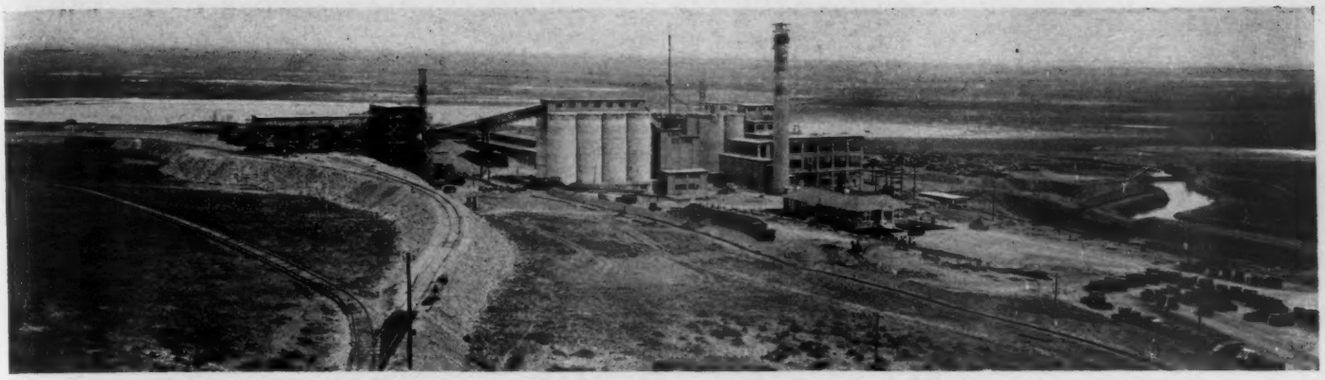


Chemical laboratory of the Boettcher plant

exhaust and low pressure heating lines, buff; and air lines, gray.

Plant water is supplied from the pond by three Allis-Chalmers 400-g.p.m. pumps, which deliver to the system with a 30,000-gal. Pittsburgh-Desmoines tank on the hill acting as a surge tank to maintain a constant pressure. This water, for all plant use amounting to four or five million cubic feet yearly, is pumped to the plant from the Poudre river two miles south, through a 6-in. cast-iron pipe line. The company's

Pump installation and air separators which handle the raw materials



General view of plant during construction, from the water tanks

water rights on this river were purchased from the Mountain and Plains Irrigation Co.

Drinking water comes from two deep wells half a mile west of the plant, and is also stored in a 30,000-gal. tank on the hill near the plant office.

Special Electrical Features

All 440-v. motor-driven equipment for control purposes is divided into groups; each group has its branch feeder switch, which gives protection to the group. In the majority of groups each motor is dependent upon the others and if one goes out the others in that group are automatically thrown out to prevent clogging and flooding of the cement materials in elevators and conveyors.

In other groups the motor-driven equipment is common to all the main units within the building having the same name. The larger motors, 2200-v., are grouped wherever practicable. Disconnecting switches with flash barriers are used to isolate groups with the exception of the mill building. Here each mill motor has its own set.

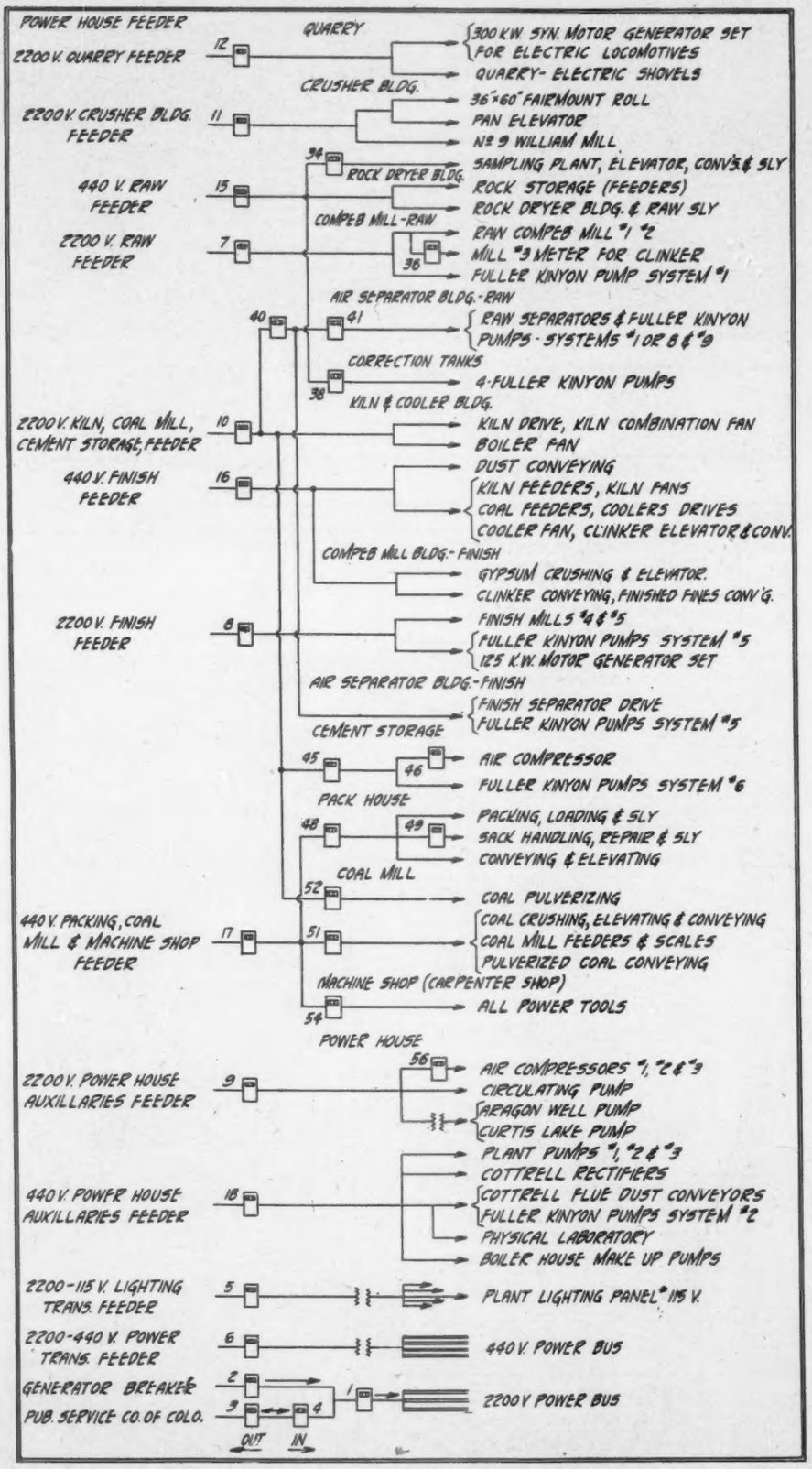
Wound-rotor induction motors are applied to the two crusher motors for starting only, to the two boiler draft fans for draft regulation, and to the kiln drives to vary kiln speed. The speed controls of the two fans and kiln drives are regulated by push-button stations from the burning platform. These variable speed motors have the motor-operated drum control.

Electrical Equipment Standardized

Standardization of motors has been carried out in this plant by duplicating as many motors as practicable, standardizing mostly on motors having a speed of 870 r.p.m. for conveying equipment, most of the cement pumps and certain classes of fans. Other speeds are necessarily used which form other groups of motors of other standard speeds. The result is a maximum duplication of motors, which, in emergency, can be interchanged, depending on the relative importance of application. However, spare motors and parts are carried in stock in proportion to the quantity and importance of application. From the manufacturer's standards, the same motor frame numbers

BOETTCHER PLANT K.W. HOURS PER BARREL					
TOTAL	ITEM	NOTES	TOTAL	ITEM	NOTES
		QUARRY, SHOVELS & LOCOMOTIVES.			
		CRUSHER: 36"×60" FAIRMOUNT ROLL, FAN ELEVATOR & No. 9 WILLIAMS MILL.			
		SAMPLING PLANT, ELEVATORS, CONVEYORS & SLY.			
		RAW COMPEB MILLS #1 #2 #3) & FULLER KINYON PUMP.			
		RAW SIDE AIR SEPARATOR BLDG. (3 F.K. PUMPS & SEPARATOR)			
		4-F.K. PUMPS UNDER CORRECTION TANKS-(MIXING & CORRECTION)			
		TOTAL RAW			
		KILN DEPARTMENT 2-KILNS, 1-COMB. FAN & 2-BOILER FANS			
		2-COOLERS, 1-COOLER FAN, 2-KILN FEEDER 2-COAL FEEDERS, CONV'S & ELEVATORS.			
		TOTAL KILN			
		COAL GRINDING DEPARTMENT COAL UNLOADING & CONVEYOR OVER PULVERIZED COAL BINS			
		COAL PULVERIZING, RAYMOND MILL & FAN			
		TOTAL COAL			
		FINISHING DEPARTMENT FIN. COMPEB MILLS, 125 K.W. M.G. SET F.K. PUMP TO AIR SEPARATOR BLDG.			
		FIN. SIDE OF AIR SEPARATOR BLDG. (3-F.K. PUMPS & SEPARATORS)			
		TOTAL FINISH			
		PACKING DEPARTMENT FULLER KINYON PUMPS UNDER CEMENT STORAGE TANKS.			
		PACKING, LOADING & SLY, SPILL CONVEYOR & ELEVATOR.			
		SACK HANDLING & REPAIR			
		TOTAL PACKING			
		MISCELLANEOUS-PLANT LIGHTING			
		MACHINE SHOP-CARPENTER SHOP			
		PLANT WATER PUMPS, COTTRELL DUST PRECIPITATION PLANT, PHYSICAL LAB.			
		4-1000 C.F.M. AIR COMPRESSOR FOR F.K. PUMPS & GENERAL PURPOSE			
		TOTAL MISCELLANEOUS			
		TOTAL K.W. HRS. PER BARREL			
		TOTAL POWER GENERATED PER BBL. CEMENT FROM WASTE HEAT BOILERS			

Form used to compute kw. hours per bbl. of cement



Electrical details shown in diagram

exist in various motor speed groups and differ in horsepower accordingly. Standard motors belonging to any one of the speed groups are selected not only for interchangeability with duplicate motors but are selected for duplicating motor frame numbers whenever possible with those in other groups. The purpose is to increase interchangeable parts in respect to bearings and bearing parts. The same procedure of standardization is carried out in respect to control equipment. All process motors, control equipment and switches with the exception of four are Westinghouse make.

An interesting feature of the five tube-mill drives is the application of the new Westinghouse clutch type synchronous motors, as already mentioned. The rotor of these is free to turn upon its own shaft by means of roller bearings, encased in an oil-tight housing. The coil side of the magnetic clutch is bolted solidly to the rotor and the clutch drum is bolted to the motor shaft. The motor shaft is coupled directly to the mill driving pinion. The speed reduction between the driving pinion and the gear is 10 to 1. The rotor has three slip-rings for field and clutch excitation with one common ring. The motor is started in the usual manner from the manually operated starting panel. The rotor turning freely on its own shaft comes up to synchronous speed when it is thrown on the line and the field is excited. When the field circuit is thrown on it is ready for the clutch circuit, which is controlled by a push-button station at the feeder end of the mills. When a mill is temporarily dropped the motor continues to idle.

Following is a list of the total connected horsepower. (On the next page.)

Each 440-v. motor has an industrial type full safety enclosed line switch as well as the motor starting equipment. The 440-v. starting equipment consists of:

(*a*) Across the line magnetic starters for motors up to 15 hp. inclusive except on belt drives.

(*b*) Automatic auto starters for motors from 20 to 40 hp. inclusive. Also 10-hp. 1160 r.p.m. belt drives.

Each 2220-v. induction motor up to 200-hp. has a wall type manually operated oil circuit breaker.

The 2200-v. starting equipment for squirrel-cage motors up to 200 hp. inclusive.

(*a*) Manually operated auto starter for 2200-v. motors above 200 hp.

(*a*) Manually operated auto transformer, type QF starting breaker and panel.

(*b*) Manually operated drum control panel for starting motors with wound rotor.

(*c*) Remote electrically controlled motor-driven drum controllers for variable speed wound induction motors.

(*d*) Auto transformer type QF synchronous motor starting panels for the 600-hp. mill motors.

The segregation of motors into groups as already described, for power distribution establish control groups. Concentrated control racks are constructed and located at points of advantage to the operators. These racks, depending upon location, consist of from one to as many groups as may be necessary for reducing operating labor to a minimum. All starting apparatus is equipped with ammeters to enable the operators to watch the loading and gage the output of their equipment. Push-button type 440-v. motor starting equipment is used throughout

DETAILS OF MOTOR EQUIPMENT

Buildings	440-*v.*	2200-*v.*	*Application*
Crusher building	140		Sampling, conveying, dust collecting
Crusher building		450	Crushing and elevating
Rock storage	66		Feeding and conveying
Mill buildings, raw side	62		Conveying and dust collecting
Mill buildings, raw side		1860	3 mill motors and Fuller-Kinyon pumps
Mill buildings, finish	75		Conveying gypsum crushing and dust collecting
Mill building, finish side		1400	2 mill motors and 2 Fuller-Kinyon pumps (1 standby)
Air separator building, raw side	10		Conveyor
Air separator building, raw side		250	Raw separators and 3 Fuller-Kinyon pumps (1 standby)
Air separator building, finish side	10		Conveyor
Air separator building, finish side		360	Finish separators and 3 Fuller-Kinyon pumps (1 standby)
Correction tanks	120		Fuller-Kinyon recirculating pumps
Kiln building	245		Kilns drives and combustion fans
Kiln building			
Coal mill	52	225	Conveying, cooling and fans
Coal mill			Coal conveying
Cement storage		300	Coal pulverizing
		400	1000 c.f.m. air compressor and 2 Fuller-Kinyon pumps
Pack-house	190		Packing, bag cleaning, conveying and dust collecting
Power-house	15		Condensate pump
Power-house		600	2 100 c.f.m. air compressors
Boiler-house		400	Boiler fans
Pump-house	75		Plant water pumps
Pump-house		250	Circulating water pump
Machine shop	170		
Total	1442		
Grand total	7937	6495	

the plant except where it was not thought feasible. Push-button controls for the conveying groups are wired for either independent motor control or interlocked control by throwing a double throw switch down or up, respectively. Push-button stations in all cases are placed by the starter and others are placed for convenience of operation. In reference to the crusher building the 440-v. feeder is connected to a 3-pole magnetic contactor. On and off push-button stations for this contactor are placed on all floors of the building adjacent to another set of stop button stations which are connected to the low-voltage release circuit on the hammer mill starting panel. These two stations on each floor are set aside from all other control stations and painted red. They are the emergency stop buttons for all 440-v. motors and for the 2220-v. hammer mill motor. The only case of interlocking 2220-v. starters is in the coal pulverizing group. In this instance 440-v. and 2200-v. starters are interlocked for stopping only—making a definite sequence of starting necessary.

In all cases 440-v. concentrated control racks are separated from 2200-v. control groups. Ample space is given in the location and arrangement of wiring for the 2200-v. starting groups. The only exposed leads are at belt-drive motors, switching compartments and at the hammer mill motor. These are either screened off or are in a separate room. Single sets of 2200-v. disconnecting switches are entirely enclosed and out of reach. However, there are several sets isolated in compartments of expanded metal screens.

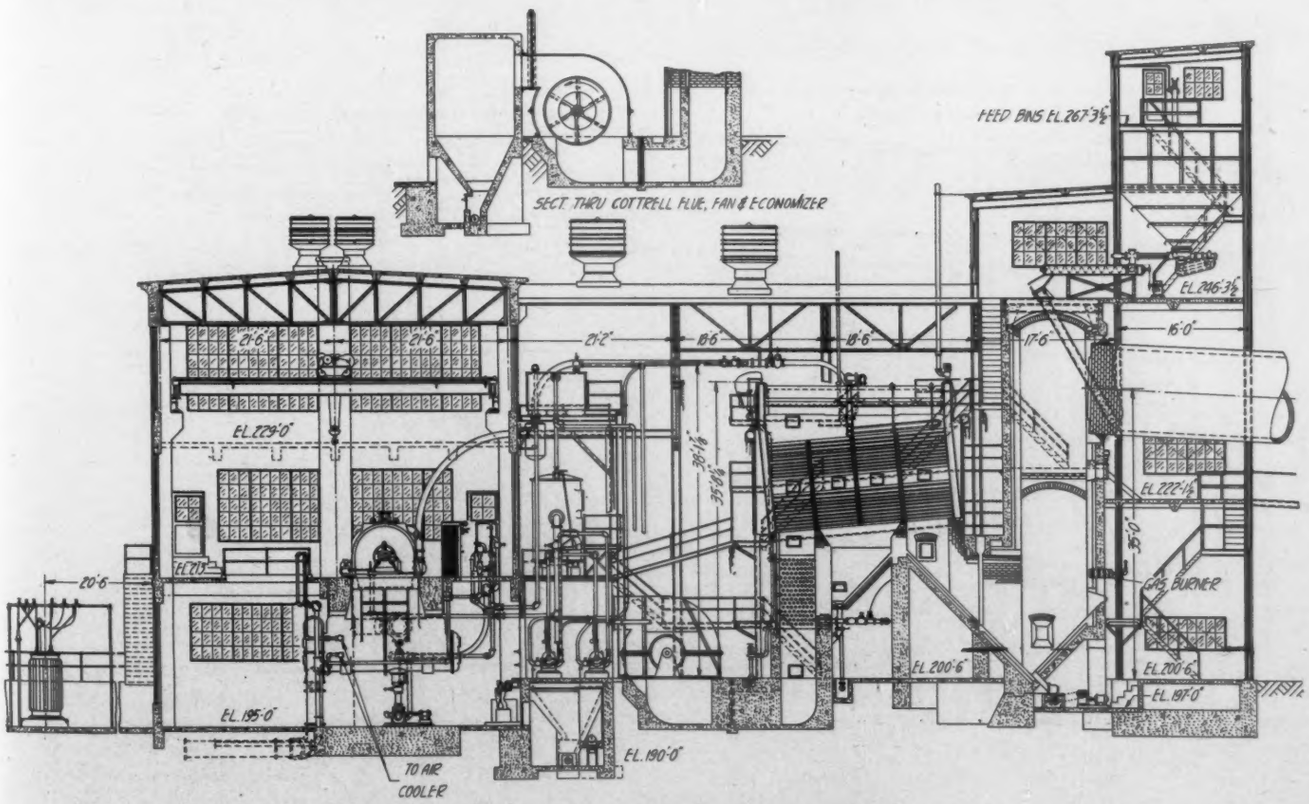
Main Switchboard

The main switchboard is a remote manually operated type and may be divided into four parts:

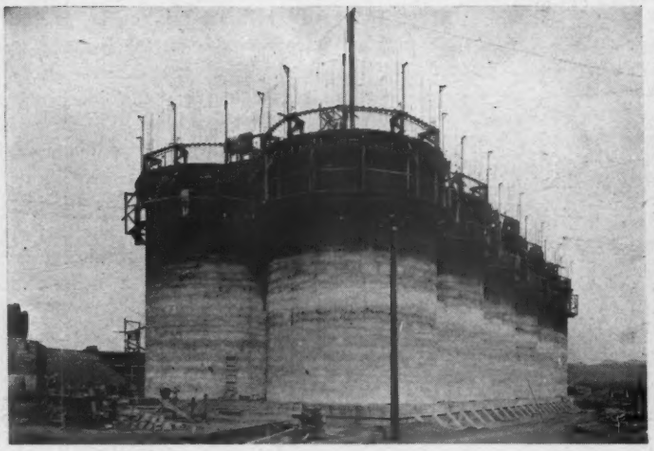
(*a*) Generator panel and Public Service Co.'s panel.

(*b*) One double panel for lighting transformers and 440-v. power transformers.

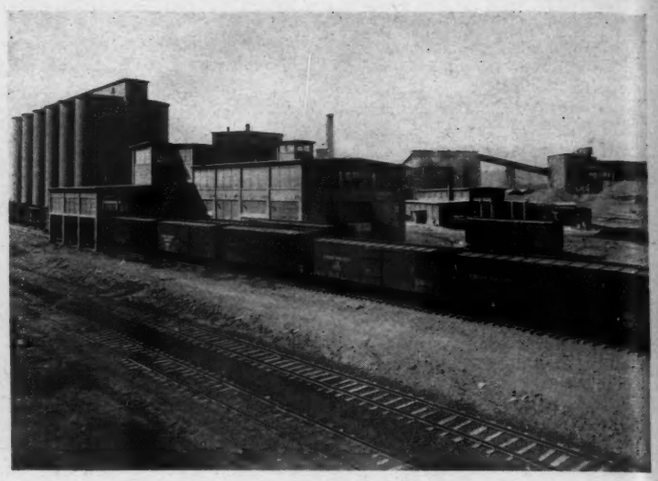
(*c*) Three 2300-v. double feeder panels and one blank panel for future needs.



Cross-section of waste-heat boiler installation and power plant



Reinforced concrete silos during construction



Packing house side of plant

(*d*) Two 440-v. double feeder panels and one blank panel.

The switchboard is a special adaptation of Westinghouse make upon which all intergrating and indicating instruments are placed on and above eye level. The integrating watthour meters are placed at eye level to assist the operator in taking and checking readings. All over-current relays, instruments from which no readings are taken are placed at the bottom on the sub-panel.

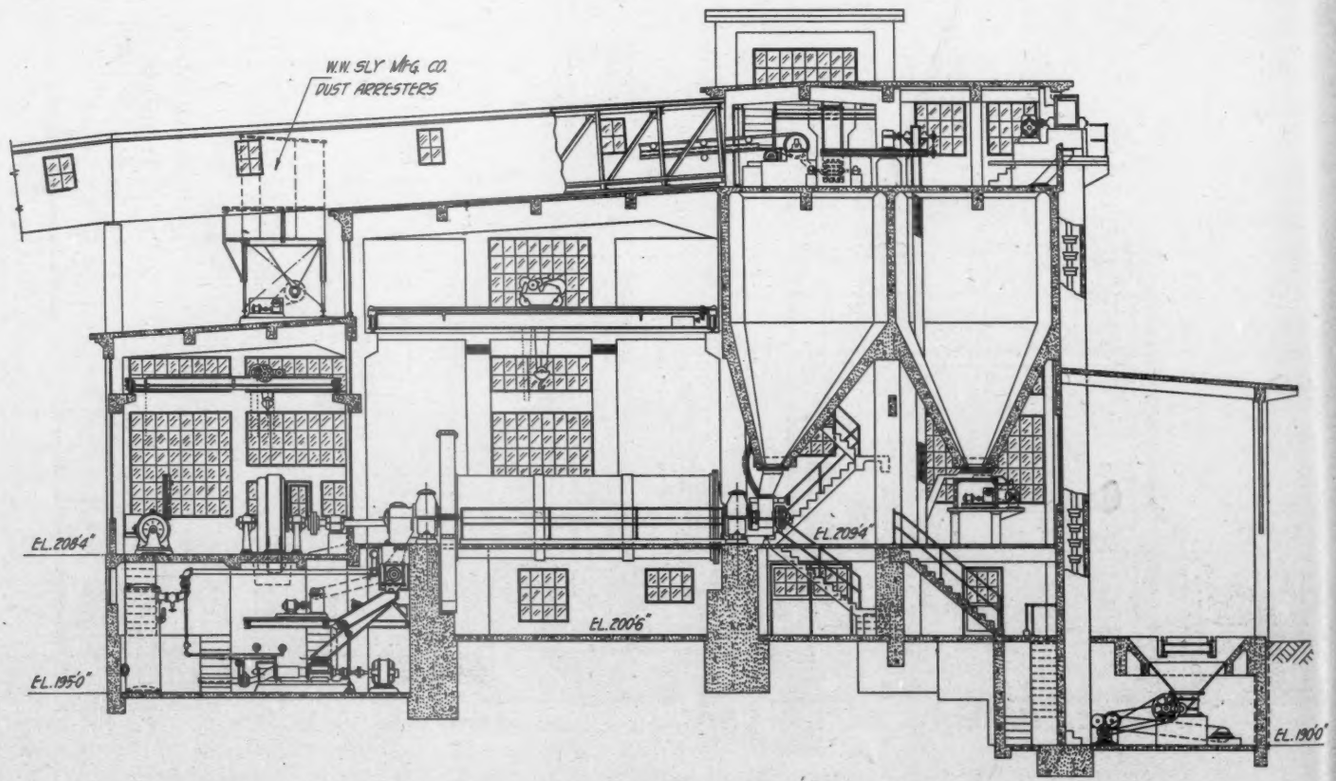
All oil circuit breakers operated from the switchboard are 600-ampere capacity with the exception of the 2000-ampere generator breaker. For standardization this necessitated only two types of breakers used to obtain sufficient interrupting capacity for the total connected synchronous load at the operating voltages of 2300 and 440 v.

The three-conductor lead-covered feeder cables leaving the power house enter a short training tunnel where they are trained into underground ducts to the desired departments. All motors of 40 hp. and under are served by the 440-v. feeder cables and those of 50 hp. and above are served by 2300-v. cables. Plant lighting circuits are served by two-conductor lead-covered cables from the power-house lighting panels located in the circuit breaker room. Each building has its own lighting feeder except where the lighting loads in adjacent buildings are sufficiently light to be served by one feeder.

The system of underground multiple ducts leads out at various points from the training tunnel to accommodate distribution. The ducts are fibre conduit, encased in concrete, forming groups of from four to sixteen. Ducts with six or more conduits are spaced to form sections in multiples of four to six. Power feeders entering the buildings are connected to switches adaptable to the feeder voltages. These switches on all 440-v. feeders are the Westinghouse enclosed safety type. Single-pole disconnecting switches with flash barriers are used on the 2300-v. feeders.

Machine Shop, Warehouse, Laboratory

The machine shop and warehouse are in one building 65 ft. by 179 ft., containing a



Cross-section through finish mill end of mill building showing pump system for handling finished cement

Another general view of the plant from near the top of the power house

10-ton Milwaukee electric crane of 20-ft. span, running the full length of the building, and also on an outdoor runway for 40 ft. outside the warehouse. A railway track runs the length of the building also, and cars can be unloaded inside by the crane.

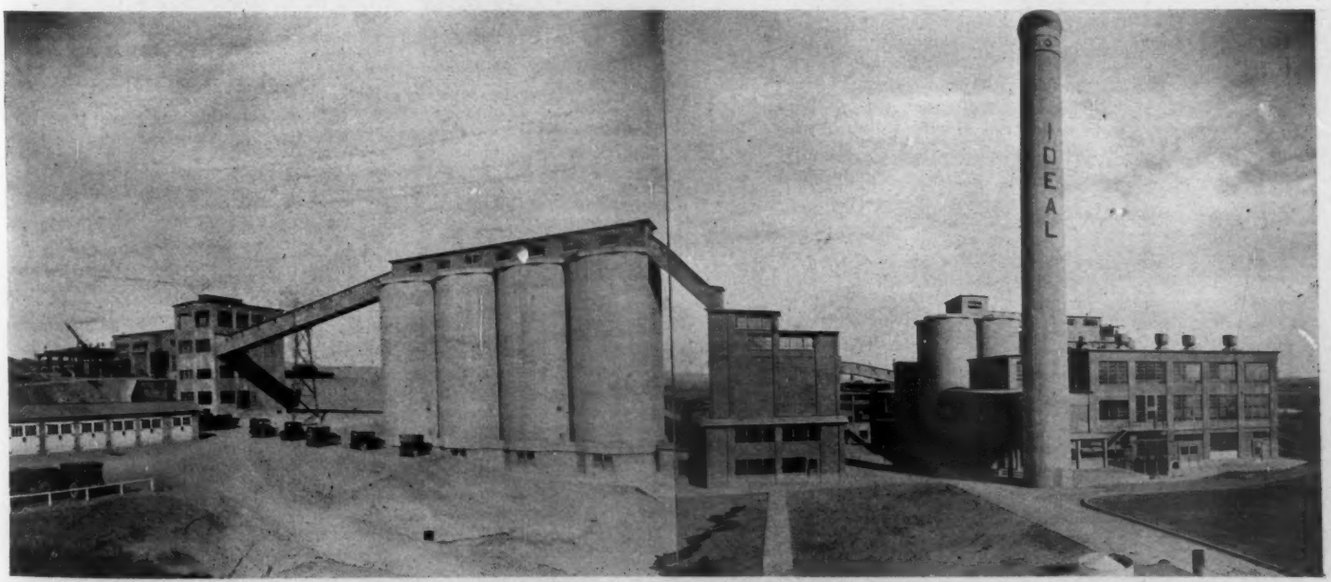
The large tools in the machine shop include a 26 and 48 in. by 22 ft. McCabe double-spindle lathe; an 18 in. by 13 ft. Lehman lathe; a 48-in. Cisco-Mueller radial drill; a 36-in. Ryerson-Rockford sliding head drill; a 24-in. Rockford shaper; a 13 in. by 16 in. Peerless hack saw; a Model 16 Oeking combination punch and shear; a 400-ton Southwark wheel press; a 600-lb. Erie air hammer; a 36 in. x 36 in. x 12 ft. Woodward and Powell planer; and a 300-amp. Lincoln welder.

The laboratories are in the office building, which is a single-story structure surrounded by a lawn and flower garden. One hundred and fifty trees were planted in the yard south of the plant. The garages are thirty-one in one row west of the office.

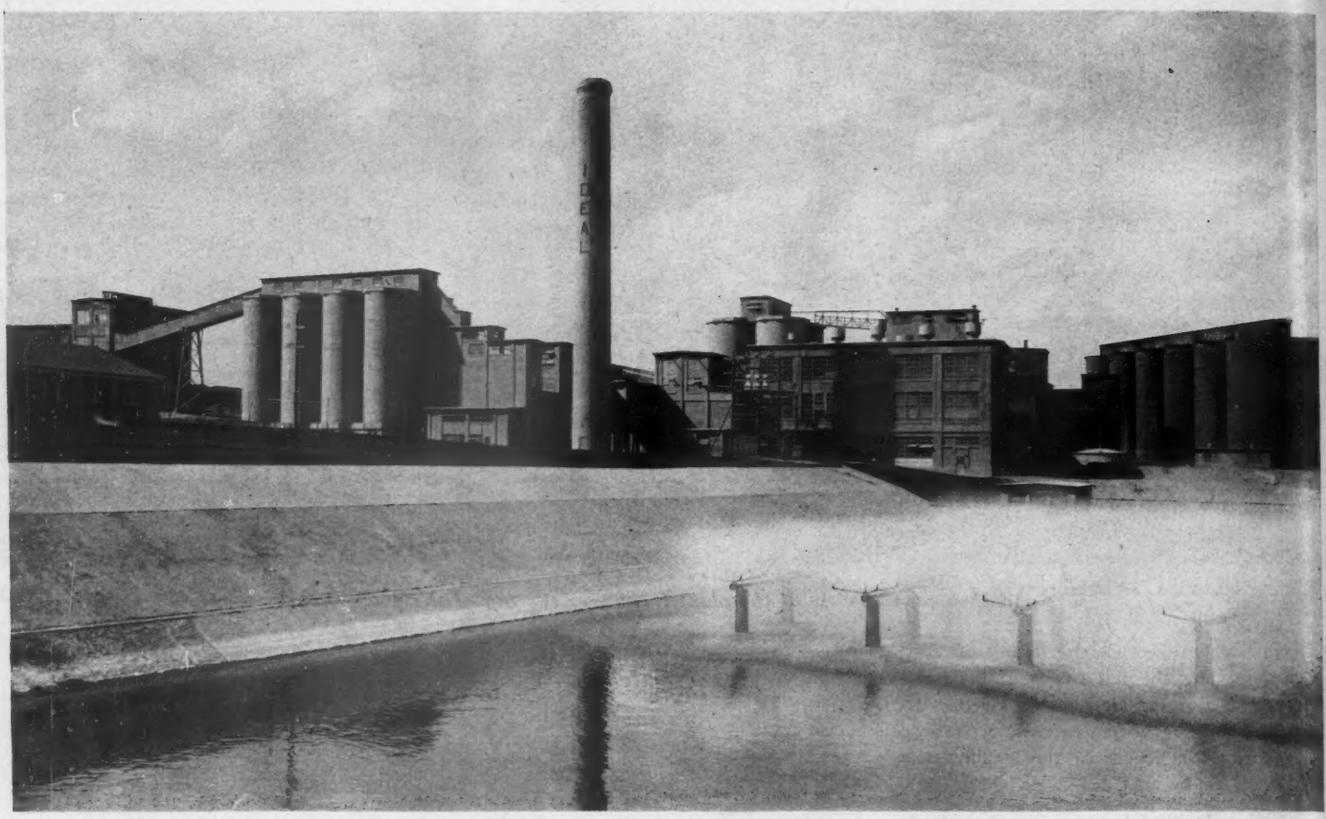
Approach to plant, showing employes' garages, and office at right

Power Contract

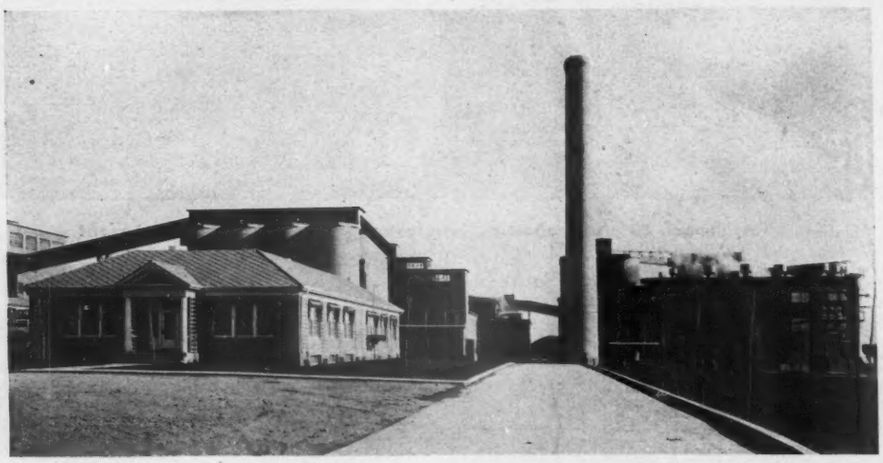
The plant is connected to the Public Service Co.'s lines through a 1000-k.v.a. sub-



Main approach to the plant, pack-house at right



General view of plant overlooking the power-house cooling pond

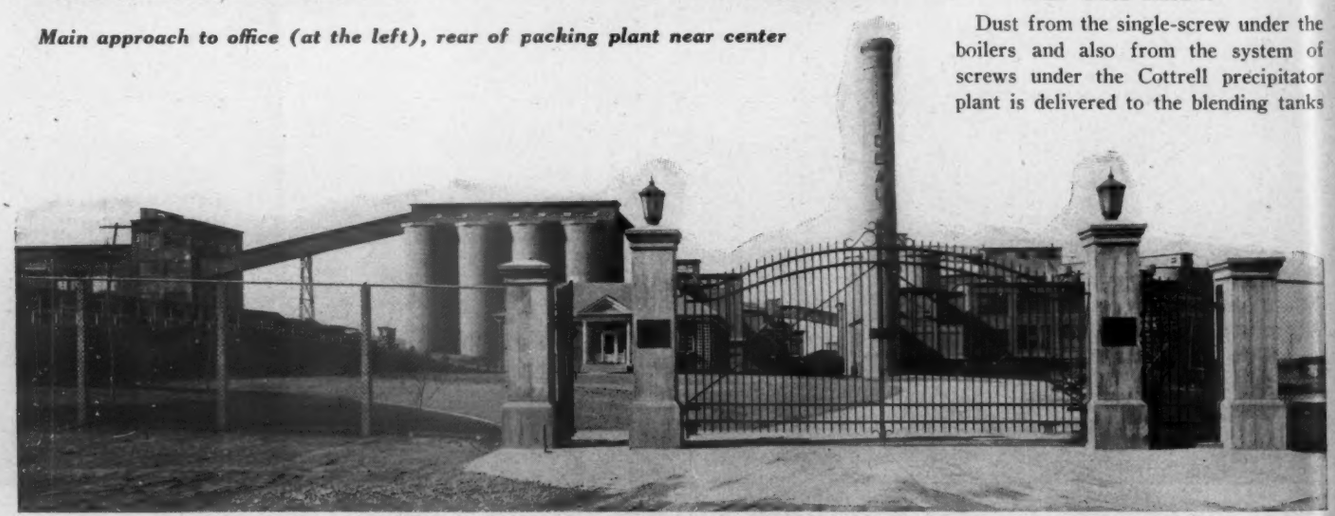


Main approach to office (at the left), rear of packing plant near center

station located near the power house, and a reciprocal power agreement permits the cement company to draw power as required during shut-down or from any cause during operation; obviating the necessity for a standby boiler in the power house. Also the excess power generated in the waste-heat plant is sold to the Public Service Co. instead of being dissipated as steam from the boiler safety valves. All power for all purposes around the plant is generated in the waste-heat plant during normal operation, and as much as 24,000-k.w. hours also returned to the power company. It is the most efficient waste-heat plant of the writer's knowledge.

Flue Dust Return

Dust from the single-screw under the boilers and also from the system of screws under the Cottrell precipitator plant is delivered to the blending tanks



The view the visitor gets as he first approaches the plant—note the architecture of the gateway

continuously by two 4-in. Fuller-Kinyon pumps.

Air Compressors

The original compressed-air installation consisted of four 1,000-cu. ft. Ingersoll-Rand XCB duplex, short-belt drive compressors, each driven by a 200-hp. motor. One was to have been a spare, but so many uses for air in addition to the Fuller-Kinyon pumps were found that a 2500-cu. ft. Ingersoll-Rand, Class PRE 2, duplex, direct-connected compressor, driven by a 500-hp. synchronous motor, is being installed, which will leave two of the 1,000-cu. ft. machines as spares.

Silos and packing plant from another angle

The general features of design include compactness, so that it is a short distance from one end of the plant to the other, and at the same time each department is in a separate building with pavement all around. Thus every part is accessible with plenty of room and provision for enlargement. Likewise, there are no tracks to cross except those to the packing-house. The plant is practically dustless, which is unusual for a dry plant. The plant has a minimum of elevators and conveyors. The Fuller-Kinyon equipment is as complete as in any plant to date. The labor-saving equipment has made it possible to operate with an exceedingly small force, and every safety provision possible has been made. During the entire period of construction and operation to date there has not been a single serious accident or injury to a workman.

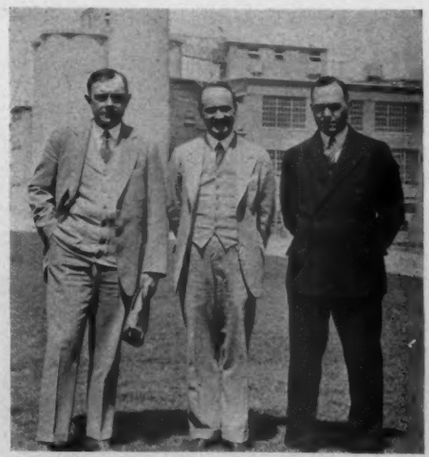
Personnel

The personnel of the organization includes: Charles Boettcher, president; Claude Boettcher, vice-president; R. J. Morse, vice-president and general manager; Harry James, treasurer; Harry Warner, sales manager; I. J. Dilts, superintendent; W. G. Banks, chief chemist.

The Men Who Engineered the New Boettcher Cement Plant

PAUL C. VAN ZANDT, chief engineer of the Colorado Portland Cement Co., whose article elsewhere in this issue describes the Boettcher plant in detail, is one of the best known cement-mill designers and engineers in the world. For several years he was with the cement mill department of the Allis-Chalmers Manufacturing Co., designing and erecting plants, both in this country and abroad. Later he was chief engineer of the Asano Cement Co. in Japan.

J. F. Kaufman, principal assistant to Mr. Van Zandt, had charge of the drafting room and is principally responsible for the design. He is a civil engineer, and started the plant in operation. Leland Schuch is the electrical engineer; Roy Woodmansee made most of the mechanical design. G. Lutz did the reinforced-concrete structural design. J. E. Griffith was superintendent of construction, and supervised both construction of the mill and the installation of the machinery. Arthur L. Hill was assistant superintendent of construction and is now assistant superintendent of the mill, under I. J. Dilts, superintendent.



From left to right: J. E. Griffith, superintendent of construction; Paul C. Van Zandt, chief engineer; J. F. Kaufman, assistant engineer

The electrical features of the plant are described in detail by Mr. Schuch in a current issue of the *Electric Journal*, and the power plant is described by Mr. Van Zandt in a current issue of *Power*. The plant marks an epoch in dry-process plant design, and has already been visited by cement manufacturers from all parts of the world.

Marquette Cement To Open New Quarry at Cape Giradeau, Mo.

THE MARQUETTE CEMENT MANUFACTURING CO., Chicago, will take possession of the Marquette Guernsey farm near Cape Girardeau, Mo., within a few days to open a quarry there.

This farm is a part of the tract which the company has owned for four years. The soil from the greater part of the remainder has been removed by hydraulic stripping and the rock has been quarried.

E. M. Gould, quarry superintendent, explained to a reporter for *The Missourian* the manner in which the soil will be removed, a plan used in the stripping of several other tracts of the company's holdings.

Levees are being constructed around a 125-acre plot south of the company's grounds and west of the old Commerce road. The plot will be filled with water and the soil from the farm's surface. The entire plot will be filled to a depth of approximately 7 ft., Mr. Gould said, this representing millions of yards of soil. Nearly 2,000,000 cu. yd. of soil has been stripped from the company's holdings and 1,500,000 cu. yd. remains to be removed.

In explaining the stripping process, Mr. Gould said water, backed by a pressure from powerful pumps with a force of 130 lb. per sq. in., is forced through a 2½-in. nozzle against the soil, which force readily removes all soil and loose rock. A total of 3200 cu. yd. of soil has been removed in a single day by this process, Mr. Gould said, but he stated that 2000 cu. yd. was a very good average.

The quarry has been penetrated to a depth of nearly 200 ft. in one or two places. Mr. Gould said tests had shown the depth of solid limestone in the quarry to be 900 ft. and probably deeper. This fact, together with the stripped surface of 32 acres, he said, would give the company a rock supply that would last 50 or 60 years. The 125-acre plot to be filled will take care of all the soil to be stripped from the surface, he said.—*Cape Giradeau* (Mo.) *Missourian.*

Sand Pumping at Lawrence, Kansas

An Efficient Combination of a Dredge and Automatic Sand Cone Used by All the Plants in the District

By Erasmus Haworth
Lawrence, Kansas.

LAWRENCE, Kansas, is situated astride the Kansas River about 40 miles west of Kansas City. Throughout the life of the town the river has furnished a supply of good sand in whatever quantity demanded. For more than half a century sand dealers drove their teams on to a sandbar and shoveled sand into their wagons by hand to supply the local trade. Such sand had been washed clean by the river and in every way was satisfactory for masonry construction and for plastering purposes. Then came the sand dippers. The Browning Kaw River Sand Co. established one of these, a plant still in operation. It delivers the sand to a convenient place on the south bank of the river and supplies a part of the local trade. For years teamsters shoveled the sand into their wagons from the sandpile, but now a small power loader is used for loading wagons.

Under ordinary conditions of river, freshets replace the sand here as fast as it is taken out. While the water is low but little filling in is noticeable. But with just a little rise in the river a new supply is washed in the place made vacant by pumping the week before. I am told that in some instances only a few hours have been required to fill in a hole made by steady pumping during two or more weeks, although usually the fresh supply comes more slowly. The original source of such sand is the mountains hundreds of miles to the west, but the immediate supply is from only a short distance upstream.

Of course the sand here is about the same, whatever company produces and sells it. It should be noted, however, that much variation is found all over the bed of the river in details of character of sand and degree of compactness as it lies in the river. In some places it pumps much easier than in others.

Experience in Kansas shows that the farther west one goes the coarser he finds the sand to be, and the larger proportion of coarse sand. Midway across the state it will average much coarser than in Lawrence, and the proportion of gravel present is from five to ten times as great. In fact, the amount of gravel at Lawrence is so small it is not economical to separate it from the sand, nor is this necessary from the standpoint of using the sand.

Dredge and pontoon line of the Browning Sand Co.

Automatic cone, stockpile and bins of Browning Sand Co.'s Lawrence plant

Bowersock Sand Co.

In 1919 the Bowersock Sand Co. established a pumping plant for pumping sand from the bed of the river on to the south bank. Sand was sold to the local trade for a time, after which a switch was built from the Santa Fe tracks and shipping sand by rail was begun. Later the company installed a second boat on the river. Each boat has its own suction line, but each delivers into the same general delivery pipe.

The two boats of the company are duplicates. Each is 20x60 ft. in size and has a housing about 16x40 ft. The machinery includes a motor and a pump with necessary attachments. The motor is of 150 hp., made by the General Electric Co., and the pump has an 8-in. intake and a delivery pipe of same size. It was made by American Manganese Steel Co. Pump and motor are installed about 25 ft. apart and connected by a 16-in. three-ply leather belt and in order to vary the speed of the pumps, pulleys of different diameters are used.

The main delivery pipe is located on the bank of the river, shorter pipes connecting it with the pump boats. Shutoff gates are placed in proper places so that sand from either pump may be sent into and through the main delivery pipe and delivered at either one of four terminals, conveniently arranged. At each of two terminals is

a standard Link-Belt Dull Cone elevated about 40 ft. above the ground, which allows a large stockpile of sand to accumulate when necessary. The two cones are placed about 200 ft. apart. Beyond these, downstream, are two bins, each with its terminal from the delivery pipe. One is for holding sand to supply local trade, built so that a wagon or truck drives under a loading chute. The other is for loading freight cars. A long switch with 15-car capacity passes close to the bin and to the two sand piles, which permits loading sand from these into freight cars also. A portable loader is used to load sand into cars from the stockpiles of sand. Usually when loading cars, the car is spotted at the regular loading terminal and sand flows into it directly from the delivery pipe.

Power for all work comes from a 2300-v. wire of the Kansas Electric Power Co. A transformer drops this to 440-v. for use in the motors, and another smaller transformer drops the current to 110-v. for lighting purposes.

Sand is renewed in the river bed at every succeeding freshet, but during an unusually dry season some years back one of the sand boats had to migrate up the river slowly as the supply of sand was reduced. This was continued until it became necessary to extend the pipe to a total of close to 2000 ft. This upstream boat is still in that position, a short distance below the dam across the river. It seems to be used fully as much as the one closer to the terminals, even though it must force the sand this long distance. The sand here is unusually pure quartz sand, only a small per cent of it being grains of feldspar or other material. Also, it is just about the right degree of coarseness.

Browning Kaw River Sand Co.

About a year ago the Browning Kaw River Sand Co. decided to go into the sand business at Lawrence. It built a pumping plant down the river about a fourth of a mile from the eastern terminus of the Bowersock plant, and it is now pumping sand for local trade. About the same time this company built a duplicate plant at De Soto, a station about 16 miles down the river, on the Santa Fe. The two plants are as nearly duplicates as it was possible to make them, so only the Lawrence plant will be described.

The Lawrence Browning plant is shown in two photographs, one showing the terminal with Link-Belt cone, as in the Bowersock plants, with loading bin, and portable power loader near left of view, and the other showing the dredge. Mounted on the dredge is a General Electric motor of 150 hp. and an 8-in. centrifugal pump made by the Morris Machine Co. The motor connects directly to the pump. Power is drawn from the same 2300-v. line of the Kansas Electric Power Co. that serves the Bowersock company. The arrangements for varying the speed are the same as is used by electric street cars for slowing or speeding up. The entire plant is operated by one man. He sits in a comfortable chair placed so that the machinery is all around him. Windows in the boat house are specially provided that he may see every part of the plant without leaving his seat.

Part of Bowersock Co.'s plant where two dredges pump to four terminals through one shore line

The boat is moved by a cable passing around a power hoist drum. On another drum is a second cable which raises and lowers the intake pipe. The intake pipe is about 36 ft. long.

At the Browning plant may be found proper gages on every pipe, indicating pressure when in operation. The terminus of the delivery pipe is around 70 ft. above the river. The pressure gage on this pipe registers around 60 lb. while in operation. The gage on the intake pipe varies from 12 in. to 30 in., which shows the difference of degree of suction necessary for different conditions of sand as it lies in the river bed. The rate of pumping at all of the three Lawrence plants is about a ton a minute in regular work, but under most favorable conditions this has been brought up to 2½ tons per minute.

Increased Production of Fuller's Earth in 1927

THE fuller's earth sold or used by producers in the United States in 1927 amounted to 264,478 short tons, valued at $3,767,038, it is announced by the United States Bureau of Mines, Department of Commerce, which has collected statistics in cooperation with the Geological Surveys of Florida, Georgia, Illinois and Texas. This is an increase of 13% in quantity and 12% in value compared with 1926. Every important producing state except Illinois and Texas showed an increase. The output was reported by 16 operators in seven states in 1927, namely, Arizona, Florida, Georgia, Illinois, Massachusetts, Nevada and Texas. Georgia was the leading state in production in 1927, with Florida second and Nevada third. These three states produced 79% of the total output. The average value per ton was $14.24 compared with $14.33 in 1926.

Fuller's earth is a term used to include a variety of natural substances that possess the property of absorbing grease or clarifying, bleaching or filtering oil. They are mostly clay-like substances, though recently discovered material in the West, which is of different character, is said to be superior to the eastern fuller's earth. The original use of fuller's earth was in the fulling of cloth, but little of it is now used for this purpose. It is used almost exclusively in the bleaching or filtering of vegetable and mineral oils.

Until 1895, when fuller's earth was successfully produced commercially in Florida, the United States was entirely dependent on foreign supplies. In 1927 the imports of fuller's earth were 7580 short tons, valued at $109,281.

The exports of fuller's earth are not separately shown in the official records of the foreign commerce of the United States but six producers reported to the Bureau of Mines that in 1927 they exported 12,287 short tons.

Mexican Cement Manufacturers Not Much Troubled by "Return Sack" Problem

CEMENT PRODUCED IN MEXICO is packed in paper-lined jute and cotton sacks, 50 kilos to the sack (110 lb.). Although the factory allows a certain amount for returned sacks, a surprisingly large number are retained and sold for clothing purposes or for household uses among the poorer classes. Belgian and Italian cement imported into Mexico is packed in wooden barrels, paper lined. The staves are tongued and grooved, with heads cleated, and four iron and four wooden hoops about the body of the barrel. (Consul John Q. Wood, Vera Cruz, Mexico.)—*Commerce Reports.*

Sand Settling and Devices for Settling and Classifying Sand

Part VI—Elements of the Sand Drag

By Edmund Shaw
Editor, Rock Products

THE sand drag, or sand box (it has half a dozen different names) is one of the numerous devices for settling and classifying sand that has been taken from the mining industry and adapted to use in the rock products industry. The original form is shown in Fig. 22. It consisted of a long, narrow box in which was a belt with flights of angle iron, riveted to the belt. In order to keep the bearings of the pulley at the deep end of the box out of water, and still bring the flights where they would excavate to some depth, the pulley was made very large, sometimes as much as 6 ft. or even 7 ft. in diameter. In the older form the belt was driven so that the tight side was the digging side and the drive was always on the front pulley. The feed was usually put in at the deep end and taken out through an opening on the side, but sometimes this was reversed, the overflow going out over a "tail board," a baffle which could be raised or lowered.

This machine worked pretty well as a classifier to use with tube mills and for similar purposes. The tonnage handled was usually not very large (as compared with the tonnages handled in sand and gravel and crushed-stone plants) and the greater part of the material was fine sand (crushed quartz). But when this machine had to be adapted to the use of sand and gravel and crushed-stone plants, several changes had to be made. The belt was replaced by a chain, or two chains, and eventually manganese or other alloy steel had to be used for the chain to obviate excessive wear. The wooden box was usually replaced by one of steel. The big pulley on the end was found not to be needed as the method of driving was changed. This change put the digging on the slack side instead of the tight side of the belt, and it was perhaps the most important improvement that was made. It lessened the strain of digging by allowing the flight to rise over an excessive amount of sand instead of ploughing through it, and gave a more uniform output. Accumulations of sand could be worked out by the slack belt while the sand in the feed was lessened.

Digging with the slack side had long been practiced with bucket dredges, but the lesson had to be learned through experience or accident by many sand and gravel producers. In one instance it was learned by accident, greatly to everyone's benefit. This was at the washing plant of the Marble Cliffs Quarries Co., Columbus, Ohio. The sand in this case was limestone screenings, and limestone screenings will pack under water almost as hard as concrete. Almost as soon as the box was put in service, the chains broke and the sand had to be dug out before they could be repaired.

The company made its own machines and on one of them a mechanic misunderstood instructions and put the drive on the pulley at the deep end. After the box was installed, the superintendent thought there might be a possibility of its working better with the digging on the slack side, and a trial showed this to be correct. All the boxes were changed over to slack side digging and there was no trouble with them thereafter.

The original form of drag machine, using a belt instead of chains, is used in some plants in the Rocky Mountain district, and a photograph of such a machine was shown in the article on the Gordon Sand and Gravel Co.'s operation, Denver, Colo., published in the June 9 issue of Rock Products.

Operation of Drag Machines

There is probably no machine used to settle and dewater sand that can be run to obtain such widely varying results as the drag machine, and the results are also affected by features of the design. It will be well, therefore, to discuss the principles applicable to all machines before discussing commercial forms.

The things that are affected are: The capacity or possible output of the machine, the degree of dewatering, and the classification. In general it may be said that as the output is increased the degree of dewatering is lessened and the classification is coarsened, that is, coarser grains are thrown into the overflow.

Each flight digs into the material, draws it through the water and drags it up an incline. During the time it is on the incline the water drains back. If the drags move slowly there is plenty of time for the water to drain out, but if they move fast the sand will not only carry all the water in the voids but more, which will be brought up as it would be brought up by a pump. In fact, if it is run fast enough such a drag *is* a pump and will lift out merely water, although rather inefficiently. Hence, if the operator tries to get an increased output by increasing the speed of the drag he soon finds that he is sacrificing in the efficiency of the dewatering.

With slow-running drags and a properly designed slope on which the sand is drained as it is drawn out, it is possible to obtain sand with a moisture content of 16% to 18%. depending on the size and grading. With drags running fast, moisture contents as high as 50% have been noted in actual practice. This is a much higher moisture content than that of the automatic settling tank discharge, which is about 28%, as told in the previous number of this series. And 28% moisture means 0.4 lb. water for each pound of sand, while 50% moisture means a pound of water for each pound of sand. Naturally, with so much water a great deal more clay and fine sand would be brought over than if the moisture was kept down to where it should be.

Position of the Overflow

Owing to the shape of the box (or trough, if this name is preferred), the position of the overflow is important. As one end of the box is a fairly flat slope, the higher the overflow the greater will be the area of the pool in which the sand settles. So the higher the overflow the finer the sand in the overflow, and this is further helped by the action of the drags. In a very shallow pool (with the overflow low) the drags will agitate the water until the fine sand will hardly settle at all, and practically all of it will go out of the overflow. The speed with which the drags are drawn through the water will increase or decrease the agitating effect as it is increased or decreased.

Most drags are built with vertical parallel sides, but they may be built with sloping sides. With a box built in this way it is possible to vary the area of the settling pool greatly by raising or lowering the overflow. Drag machines should be built that way if it is desired to vary the classification considerably.

Slope of the Drain Board

The sloping surface on which the sand is drawn out is sometimes called the drain board, and its slope affects the work of the

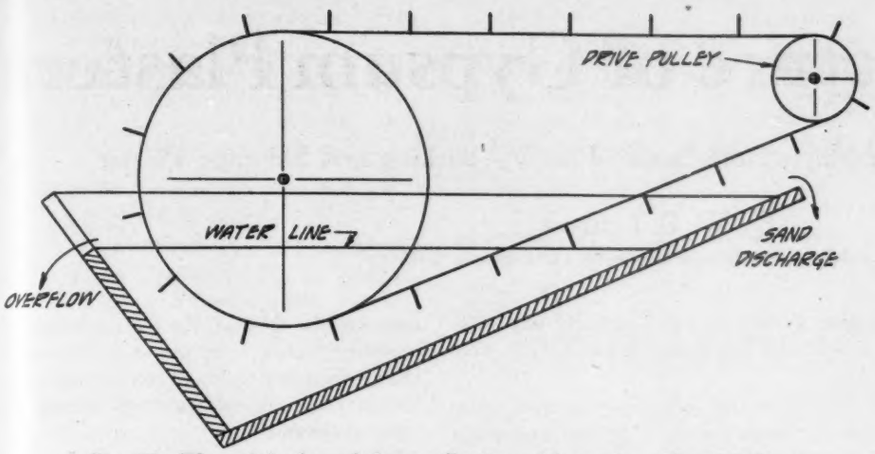


Fig. 22. The original sand drag—digging with tension side of belt

machine. If it is long and flat the sand will be a long time passing over it, giving plenty of time to drain, but the water will flow back so slowly that the effect of a longer time is lost. If it is made short and steep, the drainage will be rapid, but the drags will not hold so heavy a load. Hence for the same capacity they must be run faster and the draining effect of the steep slope will be lost.

It is evident that there is some best angle for the drain board, neither so flat that the water will not flow back quickly nor so steep that the flights will have to move too fast to keep up with the sand feed. And practice seems to have found this angle to be from 20 deg. to 27 deg. Of the commercial machines examined none had less than 20 deg. nor more than 27 deg. for those used in the rock products industries. Drags used in the mining industry have been made with much steeper drain boards. The writer once saw one made experimentally with a 45 deg. slope and several others with 30 deg. slopes. But apparently experience in the mining field has been the same as in the rock products field, for the slope of a standard type shown in a recent book is 24 deg.

Widening the machine is one way of increasing capacity, but here again experience has shown that such a method may be carried too far. As the drag is run by two chains, the greater the distance between these chains, the greater will be the effect of slight differences in the tension of the chains. The widths noted run from 3 ft. 6 in. to 5 ft. 6 in., and this latter figure is probably as wide as it is well to build these machines.

(To be continued)

Superphosphate Is Found Not to Affect Soil Acidity

IN CONNECTION with the change of the trade name of "acid phosphate" to the original term "superphosphate" approved by the Association of Official Agricultural Chemists and by the National Fertilizer Association, the attention of the Department of Agriculture has been called to statements occurring in department publications of 20 or more years ago to the effect that acid phosphate was a cause of acidity in certain eastern soils, the department stated March 15.

The statement follows in full text:

Dr. Henry G. Knight, chief of the newly organized Bureau of Chemistry and Soils, says this belief, current about 20 years ago, is not well founded and that modern research has shown that properly manufactured superphosphate (acid phosphate) of recent years contains no free acid and that the evidence of fertilizer experiments by the department and by several state agricultural experiment stations shows that superphosphate (acid phosphate) is not a cause of acidity in soils and in most cases does not change the reaction of the soil appreciably, one way or the other.

Gases From Blasting in Tunnels and Mine Drifts

THE Bureau of Mines of the U. S. Department of Commerce has issued a report of the tests recently made with blasting gases, under the title "Gases from Blasting in Tunnels and Metal-Mine Drifts." The bulletin is the result of a series of comprehensive tests made at a number of mines throughout the West, and it affords considerable information on some blasting problems to which the average powder user has never given much attention. Analyses of gases formed by actual blasts at the mines have been made and the results tabulated. Different types and strengths of explosives have been used to determine the resulting effect on the gases produced. The conclusion reached was that when an explosive is properly detonated in inert country rock, the only toxic gas produced in dangerous quantities was carbon monoxide.

The tables in this bulletin are full and concise, presenting the data in an understandable manner. They show the results of the tests of various explosives in regard to the different gases produced, and the ratio of the gases. One table shows the results from 11 different explosives.

The bulletin is the work of E. D. Gardner, S. P. Howell and G. W. Jones. It is No. 287, and may be had from the Government Printing Office at Washington for 20 cents.

Monarch Cement Co. Reaches 20th Anniversary

THE Monarch Cement Co. of Humboldt, Kan., has just celebrated its first 20 years of operation. The company started to build its plant at Humboldt in May, 1907, and about a year later turned out finished cement from the plant. Since that time this plant has been in continuous operation supplying cement to consumers in Kansas and the surrounding states. The Monarch company has kept pace with the trend of the times through the improvements it has made in its plant from time to time to provide modern methods of cement manufacture, so that now it has a truly up-to-date plant at Humboldt.

In commemoration of its 20 years of activity, the company has gotten out a 40-page

Anniversary booklet prepared by the Monarch Cement Co.

book showing the progress of the company through its period of operation. This booklet is attractively prepared, and is exceptionally well illustrated. It not only depicts the various activities at the mill, but it also shows views of buildings and structures in which "Monarch" cement was used. A number of the largest and best known buildings in the cities of the southwest are included in the picture. Without doubt, the Monarch company has done a very good piece of advertising in bringing out this anniversary booklet for its customers and friends in the building trades.

The Manufacture of Gypsum Plasters

Leaves From an Operating Man's Note Book—Part V—Sacking and Shipping Plaster

By W. B. Lenhart
Consulting Chemist and Engineer, Long Beach, Calif.

AFTER MIXING with retarder and fiber at the mill the plaster usually drops direct to the sacking equipment.

Plaster of the various grades is usually packed in jute or paper sacks, in both cases 100-lb. sacks are used mostly. Some shippers prefer the 80-lb. paper container, but this size of sack is fast being replaced by the larger size.

The use of the Bates packer for filling the sacks has been adopted by practically all the mills, replacing the old, slow, laborious, hand filling. The use of this packer was slow to gain a foothold in the gypsum industry, some mills hesitating to install it for fear that the fiber would cause the filling tube to plug and slow down production. This is not the case, however, and plaster can be sacked very rapidly in this type of packer.

For a Bates packer to fill and have uniformity of weights a certain amount of spill from the machine is necessary, and the least binding at the junction of the filling tube and the housing cap necessitates an overweight for the sack to trip. The disposal of this spill is not as simple as might appear.

Handling Spill

From a standpoint of quality only, there is less chance of error in mixing or changing from the manufacture of one product to another if there is no mechanical device to handle this spill. Simply let the material fall on the concrete floor under the packer and clean it up from time to time. This no doubt slows down production somewhat, but it makes more sure that some of the minor troubles that can happen when the spill is returned to the mixer or sacker mechanically do not occur.

In one type of installation the spill was allowed to fall in a hopper under the sacker attached to which was the suction of a fan. The fan then elevated the material to a dust collector situated on the roof of the mill. The dust collected was returned to the weighing hopper by means of a spout. This scheme had two serious drawbacks. The first was that when sacking fibered hardwall plaster, and it was desired to change to any other material which required no fiber, not only the mixer had to be cleaned and flushed out in the usual manner, but the sacking hopper and dust collector as well. As these units were being cleaned out, the cleanings naturally fell into the sacking compartment and a portion of this would be respilled again so that it was practically impossible to get the succeeding products free from fiber.

This particular mill finally resorted to installing another mixer to be used exclusively for unfibered products.

The second objection to the use of a fan and dust collector for this work was that the spill was thoroughly aerated by this scheme, which though of minor importance considering the small volume of material handled, nevertheless coupled with the other objection, should eliminate the fan for this work.

A second type of installation called for the spill to fall into a hopper similar to that used with the fan. This hopper discharged to a small bucket elevator which returned the spill to the mixer. This was more satisfactory than the fan method, but was open to the same objections in regard to the difficulty of entirely eliminating the fiber, for there was always more or less of this material hanging up in the boot of the elevator, which would find its way into the succeeding products. By a combination of the first scheme mentioned, that of allowing the material to fall on the floor, it is possible to make a clean product by the use of the elevator. When it is desired to sack unfibered material, by throwing out a clutch, the elevator can be eliminated for the time being and the spill allowed to accumulate on the floor, to be cleaned up from time to time.

If there is enough tonnage to warrant it, the logical solution is to have a separate mixer for the higher grades of plaster.

For the same reason that fiber is hard to eliminate, retarder is also, and it will find its way into some of the products where it is not wanted; but the amount is so small that it does not affect the quality of these materials. But the fiber being visible to the eye of the user is a different matter, and some complaints arise in this manner, especially in the case where a high grade product is wanted, such as dental or surgical plasters.

The use of a belt conveyor to carry the sacked material to the door of the car, as is the common practice in the cement industry, does not meet with favor in handling plaster on account of the variety of materials often shipped in one car. Many times a car's content will call for a ton of this and a ton of that material, which have to be supplied from storage (when an aged product is wanted). With a belt conveyor and an apron in the door of the car, it would be necessary to respot the car at another door to load these few sacks. The time and trouble required to do this outweigh the advantages of the conveyor.

Troubles due to shortage of sacks in the car because of a miscount are rare, if the system of checking is not at fault; standard methods of loading cars make it possible to check the content after loading very easily, quickly and accurately.

Separating Mixed Carload Shipments

Where several different kinds of plaster are loaded in the same car it is customary to separate these different grades by means of building paper, for the constant shifting of the load is liable to tear off the tags from the sacks, making identification difficult.

In the matter of tags, the best grade obtainable is none too good, and unless experience is the teacher those who do the purchasing of this commodity will secure a cheap grade, one that is easily torn off from the sacks, and in this event trouble is sure to follow.

For the convenience of the dealers and warehouse men handling plaster, the mills should standardize on a particular color of tag for each kind of plaster. If one brand of plaster has a red tag for finishing plaster and another brand has a blue one for this same plaster, there is always a good chance of error from confusion of tags. By all manufacturers having the same colored tag for the same material it would be of material aid to the men handling the goods later.

Fibered hardwall plaster, as it makes up by far the bulk of the shipments, usually is not tagged, but all other products unless in printed paper sacks are identified by tags of some sort.

Use of Retarder on the Job

Since mechanical mixing of gypsum mortar has taken hold, it is necessary to slightly under-retard fibered hardwall plaster, generally speaking. Mechanically-mixed material sets faster, as previously explained, than that mixed by hand. To offset these variations in methods of use the plasterer has become educated somewhat to the use of retarder at his mixer.

In this operation the mortar mixer adds a small amount of retarder to each batch. Experience has taught most of them the proper amount to use, but occasionally slow-

setting plaster complaints come from this cause. In the event of this complaint it is well to first find out if there is any retarder around the job, and if there is, to have the operator prepare a batch of mortar and note the amount of retarder that he uses.

Varieties of Fiber—The "Psychology" of Its Use

There are several kinds of plaster which come under the general heading of "fibered hardwall." In one variety wood fiber is added to the stucco, a second kind calls for hair fiber and a third and by far the most important is the manila or hemp fibered hardwall. Fiber made from cocoanut hulls can also be used, but that made from old rope is more common.

Junk dealers and such gather a large amount of old rope from along the harbor waterfronts, sailing boats, etc. This product is then washed and dried, after which it is cut into short lengths. These stubs of rope, usually about 2 in. long, are shredded in suitable machines, baled and the product is then ready for shipment to the plaster mills. It is not common for the plaster manufacturer to make his own fiber. He purchases the material on the open market.

Wood- and hair-fibered plaster is practically unknown in the West of late years.

Years ago the amount of fiber added to plaster to make fibered hardwall would run as high as 10 lb. per ton, but gradually this amount has been reduced. The change has been so gradual that the trade has not noticed the difference, until at present the amount used will average close to 3 lb. per ton.

The purpose of the fiber presumably is to act as a bonding agent, and to strengthen the wall, but with the small amount used today this effect is negligible. In fact, investigation of samples of set plaster removed from the wall will show about one single strand of fiber to a square inch of surface.

No doubt the plasterer in time will come to realize this fact and will at least try to get along with plaster containing no fiber. At present, however, the trade has become used to seeing fiber in the product, and if some is not present there would be an immediate howl; not that it is necessary to have the fiber, or that it does any good, but just to keep up the good old tradition.

The cost of this fiber will run about 7 to 10 cents per pound, f.o.b. shipping point, besides the trouble and expense of adding it to the plaster at the mill. Here is an economic waste of material and effort that could just as well be stopped.

Where plaster is applied to metal lath there is no doubt that the fiber helps to hold the mortar to the wall until the plaster sets, but let it be pointed out that where plaster is used for this purpose a product called "double-fibered" is used. This material has 6 lb. or more to the ton, as compared to 3 lb. in plaster for ordinary lath. For metal lath, the first coat is the one requiring this fiber content. Further, the tonnage of double-fibered hardwall will be about 1% of the total tonnage shipped, compared to 85% to 90% for the tonnage of the regular fibered plaster.

Plaster that contains an excess of fiber does not spread as easily as material with the lesser amount, as the fiber acts as a drag on the trowel, thus making a greater expenditure of labor necessary for a given area to be plastered. Here is one way to improve plasticity and to please the man on the job, but care must be exercised in reducing the fiber content so as to not destroy the optical effect entirely.

Fiber comes to the mill in the form of bales containing from 50 to 200 lb., that have been formed under sufficient pressure to require shredding before being mixed with the plaster, especially where the plaster is sacked in the Bates type of packer, otherwise chunks of fiber are liable to cause trouble at the filling tube. As previously pointed out, however, if the fiber is properly "picked" no trouble is experienced in sacking.

Fiber Pickers

There are several types of fiber pickers available. The old practice used to call for the shredding operation to be conducted in a separate room, and the mixer operator then "measured," in a suitable basket, the amount of fiber desired. Later practice is to have the picker so located that the operator, after weighing the proper amount of fiber, dumps it into the picker, which after shredding "throws" the hair directly into the mixer. This operation is performed by the mixer operator and no extra labor is required. By this method of operation the task is neater, more cheaply accomplished, and the fire hazard is reduced to a minimum.

Baled fiber, if accidently ignited, will burn the outer, loose strands with a flash, after which the fire dies out at once. The shredded material, being of greater volume and open to the air, burns with extreme rapidity and should be treated with respect.

Beware of Wetted Fiber

When a shipment of fiber is received at the mill the water content of the product should be determined at once, as frequently attempts are made to "load" the bales with moisture to increase the weight. This determination can be easily accomplished by drying to constant weight a 100-gram sample of the fiber, maintaining a temperature in the drying oven of from 120 to 160 deg. F.

Ordinary manila rope, which, to all outward appearance is physically dry, will have a moisture content, or drying loss, of from 12% to 14% by the above method, and any water content above this figure should be taken into consideration in adjusting the purchase price.

(To be continued.)

Standard Gypsum Co., Long Beach, Calif., Increases Capacity

PLANS ARE BEING COMPLETED by the Standard Gypsum Co. to increase the capacity of its plaster plant in Long Beach Harbor, Calif., with another wing and additional machinery, F. T. McDonough, manager of the Los Angeles office, said recently. The company owns a $400,000 plant which it erected three years ago on five acres on Slip No. 5, Channel 3, in Long Beach harbor. The land was obtained from the Craig Shipbuilding Co. on a long-term lease and the mill has been operated successfully with gypsum brought here from the company's quarries on San Marcos Island in the Gulf of California opposite Guaymas.

Mr. McDonough said that the company, in which S. A. Perkins of Tacoma is one of the principal directors, will increase its capacity about 50% some time this year. This will give the plant a capacity of about 500 tons of plaster daily, and to meet this, additional shipments of gypsum will be brought in from the islands by the Alaska-Mexico Transportation Co., of which Mr. Perkins is the head. This company operates the steel steamer *S. A. Perkins*, formerly the *Pallas*, and others, and has been using the barges *Daylight* and *Griffson* for additional loads. The Standard Gypsum Co. also operates plants at Seattle and Ludwig, Nev., using the ships of the Alaska-Mexico Transportation Co. for supplying the two plants on the Pacific coast. San Marcos Island is about 1400 miles distant by water from Long Beach.

The Standard company, in addition to its mill in the harbor, has a wharf on the slip 316 ft. long and running back 44 ft., equipped with modern unloading machinery and a belt conveyor which runs to the storage shed. The plans call for another wing to the mill and two more 10-ton kettles, where the plaster is dried out after having been through the crushers, mixers and other machinery.

The company has been gradually increasing its operations here under W. A. Scott, the superintendent, and is now employing about 35 men. This force will be increased about 50% when the plant is enlarged.—*Long Beach* (Calif.) *Press-Telegram.*

Lime Rock Roads to Be Tried in Alabama

ROADS of soft lime rock which have been built in such number in Florida are to be tried in Alabama, according to several Alabama papers. The contract for 17 miles from Dothan, Ala., to the Florida line has already been let.

In Florida the building of these limestone roads has built up a large rock crushing industry which is centered about Ocala. More than 20 good-sized plants were at one time engaged in this business.

New Crushed Stone Plant of Harry T. Campbell Sons Co., Towson, Md.

A Simple, Compact and Flexible Plant Layout

By C. M. Soule and L. M. Zepp
Consulting Engineers, Baltimore, Md.

THE CRUSHED-STONE PLANT described in the accompanying article is the present culmination of a modest business founded in 1892 by Harry T. Campbell, the father of the present proprietors, for furnishing the ballast stone for a horse-car line on the Harford Road in Baltimore.

With the development of the modern improved highway, and the ever increasing demand for concrete aggregates, the business grew rapidly, additional quarries, known as the Hillen Road, Falls Road and Lock Raven plants being established in different suburban localities to supply the local demands of contractors within wagon haul.

In 1916 the company became Harry T. Campbell Son, and in 1919 a new quarry was opened on the York Road, one of the main highways leading out of Baltimore, about 12 miles from the center of the city and five miles beyond the county seat, Towson, where the company's offices are located. With the advent of the improved road and the motor truck this new quarry soon became the principal operation of the company, the other workings being gradually discontinued.

In 1922 the founder of the business died and the sons incorporated under the present name of the Harry T. Campbell Sons Co., continuing the operation of the York Road plant which had a capacity of 400 tons per day. They also further increased the contracting business, specializing in state road work and heavy concrete construction of all kinds.

The contracting end of the business has been very successful, growing to such an extent that in the years 1926 and 1927 the crushed-stone plant was able to supply only about one-half the firm's own crushed-stone requirements, and those of some few customers of long standing.

To satisfy this ever increasing demand it was necessary either to enlarge the existing plant or rebuild elsewhere; and since the existing plant was without railroad facilities, and, it was felt that such connections were necessary for the proper expansion of both the contracting field and the crushed-stone market, it was decided to rebuild along

Fig. 1. Western half of the quarry of the Harry T. Campbell Co. plant at Towson, Md. showing the concrete road to the crusher—motor trucks are used to transport the stone from quarry to plant

Fig. 2. Typical old lime kiln found on the company's property

the line of the railroad, and to centralize at this one point, the yards and supply warehouse of the contracting business with the crushed-stone plant.

Site of an Abandoned Lime Operation

The site selected was an abandoned and water-filled limestone quarry with an adjoining property of some 200 acres located very close to the main line of the Pennsylvania railroad from Baltimore to Harrisburg in the town of Texas, Md.

Twenty-five years ago this section was the center of a flourishing and prosperous lime industry, now entirely abandoned; approximately 40 kilns of the type shown in Fig. 2 are standing within a radius of one-half mile. On the site selected, stood one of the largest of these old plants, producing flux stone for the furnaces of the Maryland (now the Bethlehem) Steel Co. at Sparrows Point, Md., as well as lime.

This limestone deposit consists of a 40-ft. stratum of close-grained dolomitic stone covered with an overburden of about 6 ft. of soil and clay. Beneath the dolomitic stone is a stratum, 30 ft. or more in depth, of an exceptionally pure crystalline limestone averaging 99.2% calcium carbonate.

In spite of the exceptional purity the crystalline structure of the stone was such that with the kilns in use only a very inferior grade of lime was produced, the stone disintegrating under heat and choking the kiln draft. The resulting product resembled coarse sand with some few lumps the size of a walnut. There seems to have been no attempt on the part of these old producers to meet the improved product of other fields by the introduction of the rotary kiln as a means of overcoming these difficulties. They simply struggled on playing a losing game with their antiquated equipment and succumbing one by one to the inevitable. This particular plant, was abandoned about 15 years ago, and the quarry gradually filled with water.

Re-Opening the Old Quarry

The first task in the construction of the new plant lay in emptying the old quarry of water. An 8-in. centrifugal pump driven by a 50-hp. motor was mounted on a raft constructed of 24 tar drums lashed together and covered with a suitable platform to receive the pump and motor. This pump operated continuously for 30 days removing some 60,000,000 gal. of water. Removal of the water exposed a working face some 800 ft. long and from 4 to 70 ft. high, the west half of which is shown in Fig. 1.

The upper 40-ft. stratum of dolomitic stone, which runs to the first or road level, as shown in Fig. 1, meets all the requirements of government and state road specifications and will be used by the company for concrete aggregates. The lower crystalline stratum, which is visible at the extreme left-hand side of Fig. 1, which probably will be later worked for a chemical limestone, is now being quarried in a small way and sold for the manufacture of pebble dash, etc.

A Truck-Operated Quarry

A bench method of quarrying, which has been successfully developed at the York Road quarry is employed at the new plant, the holes being driven with jack-hammer drills, equipped with steel sets from 2 to 12 ft. long. The rock is handled with steam shovels with ¾-yd. dippers, which load

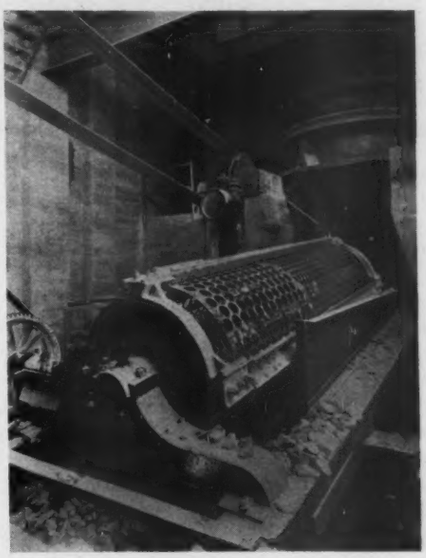


Fig. 4. The scalping screen receives its stone directly from the primary crusher

Mack trucks equipped with special bodies for delivering to the crusher. A careful study of the probable future developments as well as the existing local conditions determined in this instance the selection of

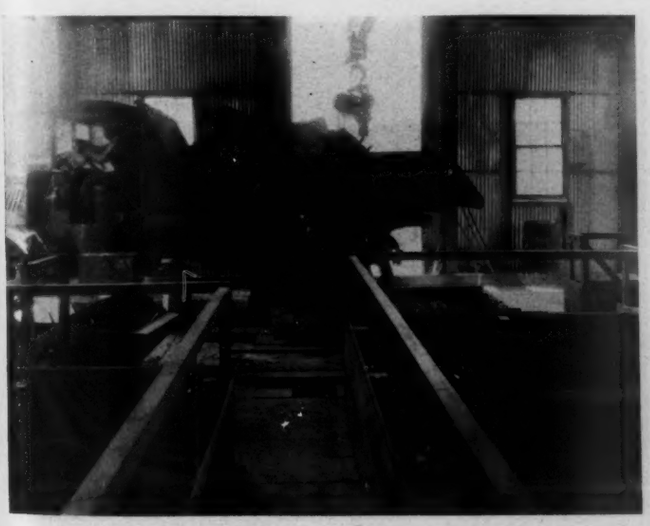


Fig. 3. Runway over primary crusher and truck about to dump its load brought from the quarry

Fig. 5. Secondary crusher and the main bucket elevator at the left

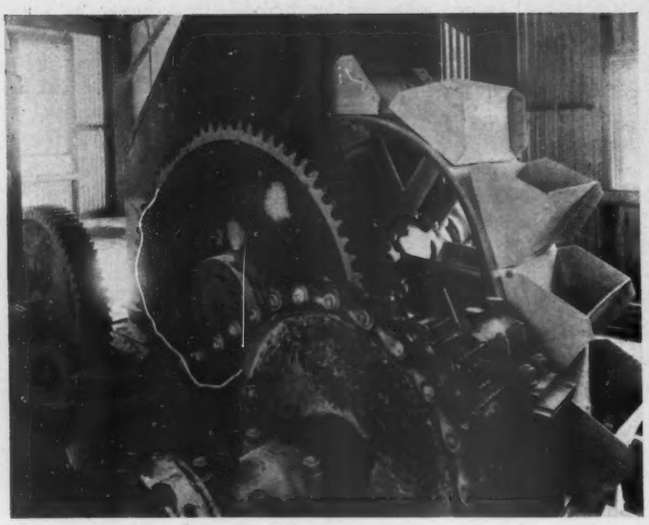


Fig. 6. The head of the main elevator with the drive and back-stop

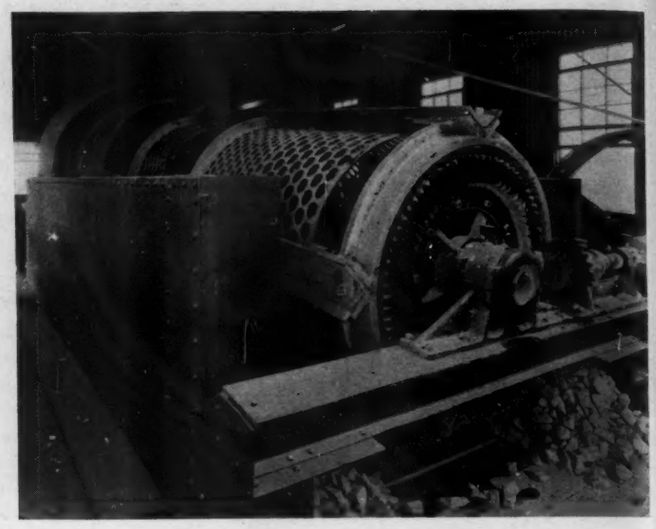


Fig. 7. Main sizing screen, showing its two jackets and steel housing

truck haulage as the most economical and satisfactory means of transport from quarry to crusher.

A 19-ft. concrete road (see Fig. 1) was constructed from the crusher building to the first level or bench at the west end of the quarry. The trucks approach the initial crusher from the west side of the quarry, driving directly over the top of the crusher and storage hopper on a special steel runway provided with guards so that the truck wheels cannot get off. The trucks discharge directly to the hopper and crusher and proceed out the east side, returning along the south end of the crusher building to the concrete road and thence to the quarry. Fig. 3 shows a loaded truck going into dumping position.

The flow of material through plant is fully shown on the accompanying flow sheet (Fig. 17) and the general plan (Fig. 18) so that we will only discuss the details not brought out in these diagrams.

Fig. 11. Main elevator and power shaft

The arrangement of chutes under main sizing screen is rather unusual in that almost any combination of stone sizes can be secured with a very simple chute arrangement. By throwing or dropping a flap valve, not only can the stone be mixed and combinations as shown on the flow sheet be obtained, but any proportion of the different sized materials coming from and through the screens may be mixed by placing the flap valve in any desired position under the screen. Fig. 8 shows the chutes as installed. The reader will note that the tailings or reject chute had not as yet been connected. All chutes have renewable liners which can be removed and replaced by unbolting the top or bottom plates of chutes.

Concrete Batching Plant

Blaw-Knox batchers have been installed under the bins so that the aggregates can be proportioned, loaded in trucks and delivered to concrete mixers on the job with-

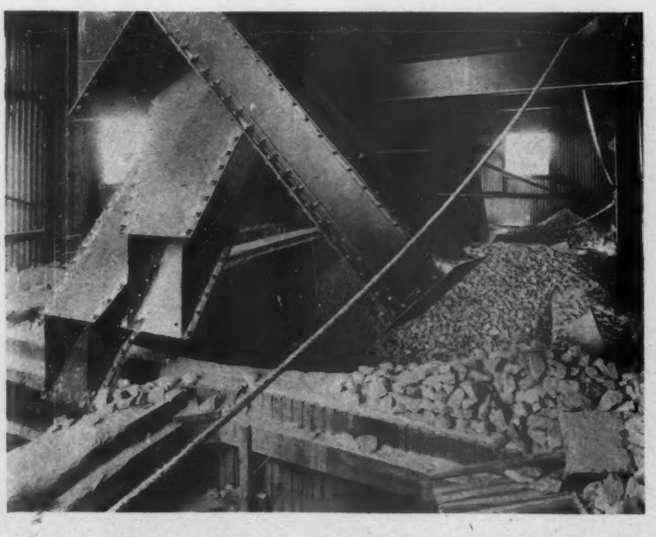


Fig. 8. Chutes under the main sizing screen discharging to the concrete bins

Fig. 9. Truck driveway under the bins, showing the batchers emptying directly to the trucks

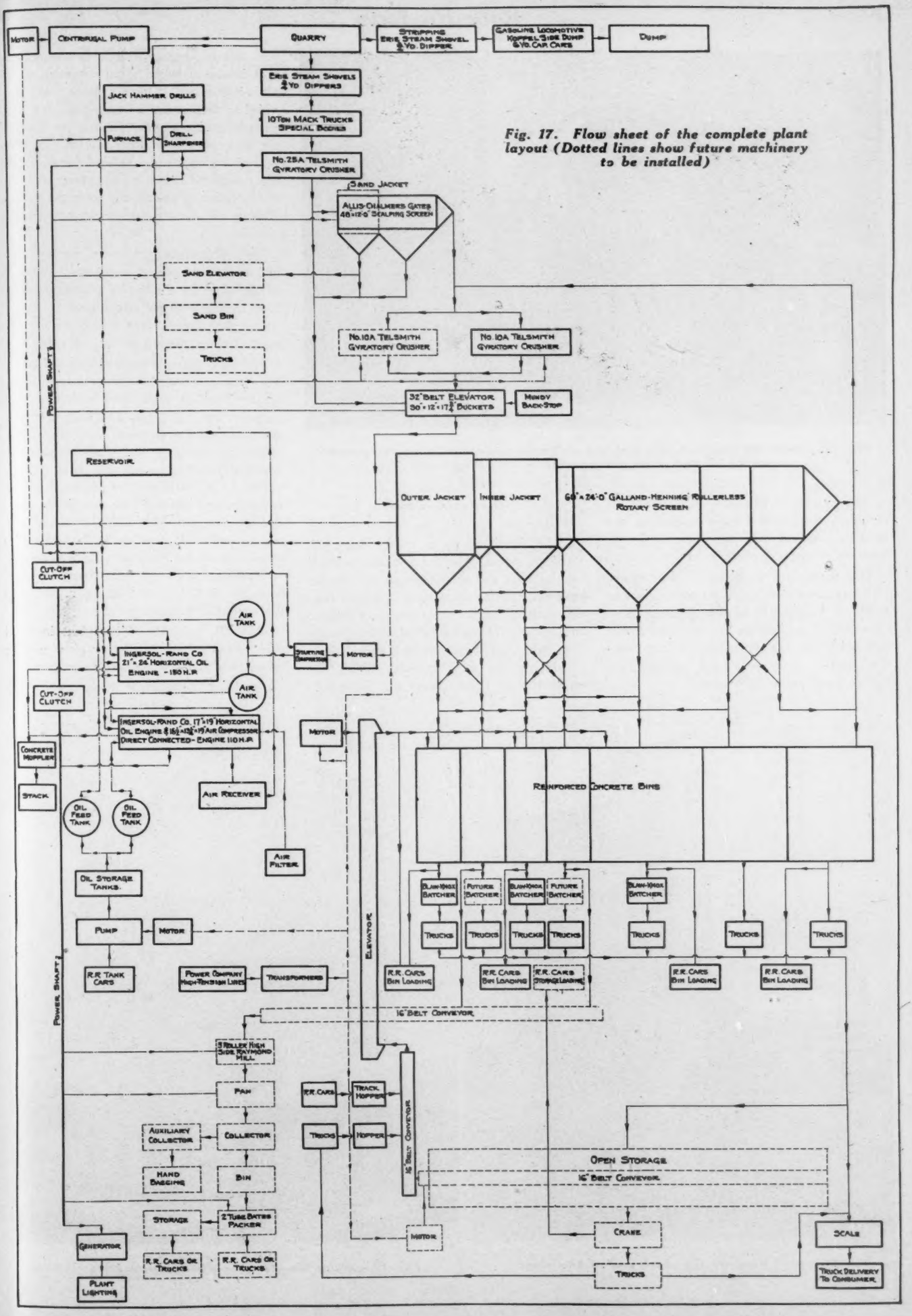


Fig. 17. Flow sheet of the complete plant layout (Dotted lines show future machinery to be installed)

Fig. 10. Inside the engine room, with the air compressor unit in the foreground and the oil engine for plant power in the background

out any intermediate handling. On state road or other work under rigid inspection, the batchers are sealed by the inspector to the required proportions of materials.

This method of handling concrete materials has saved the company many dollars in handling charges and in the speeding up of the work. Fig. 9 shows the driveway under bins, with batchers and trucks. The bin tender stands in doorway and operates the batchers and gates from outside.

Oil-Engine Power

Power for driving the entire crushing plant is furnished by a 150-hp. Ingersoll-Rand oil engine, belted to a main-line shaft, running east and west through the crusher building. All the machinery is driven from this shaft, all units except the main elevator and sizing screen being belted directly to the line shaft. A 110-hp. Ingersoll-Rand oil engine drives the air compressor which furnishes the air requirements for the quarry and this compressor engine is so arranged that it can be belted to an extension of the main-line shaft. Clutches have been provided so that in case of emergency the compressor engine can be utilized for running the main plant, and either the main or compressor engine can be utilized for operating the pulverized limestone equipment, it being the intention to operate the stone pulverizing plant at night when the quarry and crusher are idle.

This arrangement gives a very flexible and economical power layout and reduces to a minimum the chance of plant shut-down from trouble with the prime movers. Fig. 10 shows the engine room which adjoins the main crusher building on the east side.

The main clutch between engine and crushing plant is operated from a platform in the crusher building on a level with the truck runway (see Fig. 11). The man operating this clutch has a complete view of all machinery in the plant and when starting can watch all machines to see that no trouble develops. This man will be stationed at the initial crusher and will take care of the stone dumped. In case of trouble he has to take but a couple of steps to be in position to throw a lever and disconnect the whole plant.

Trolleys and hoists have been provided over all machines for making repairs and the handling of parts.

With all the units of the plant installed every pound of stone entering plant will be utilized and reduced to a salable product.

Four men are required to operate the en-

Fig. 13. View of the north end of the plant

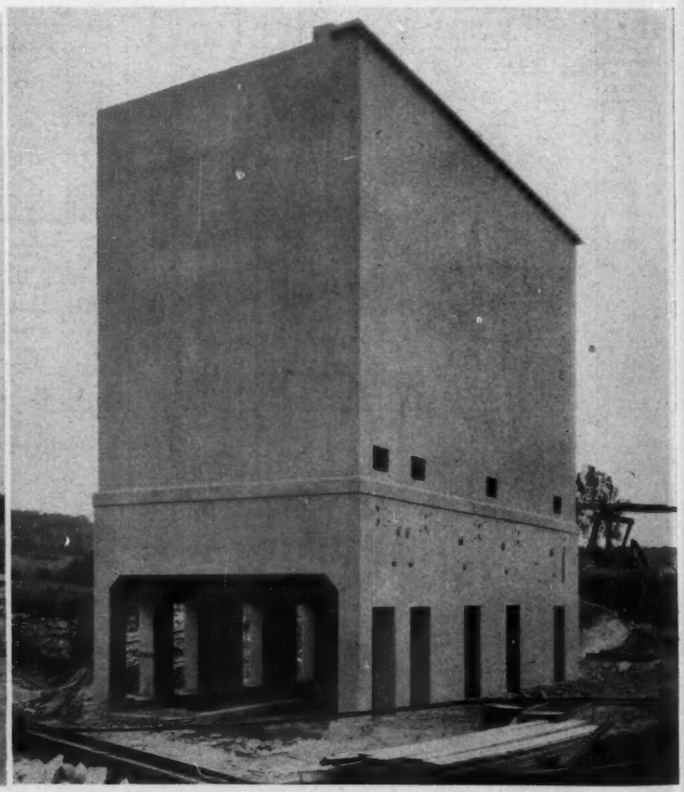


Fig. 15. Stone bin after the sliding forms were removed

Fig. 18. General plan of the Harry T. Campbell Sons Co. plant. (Dotted lines indicate future machinery to be installed)

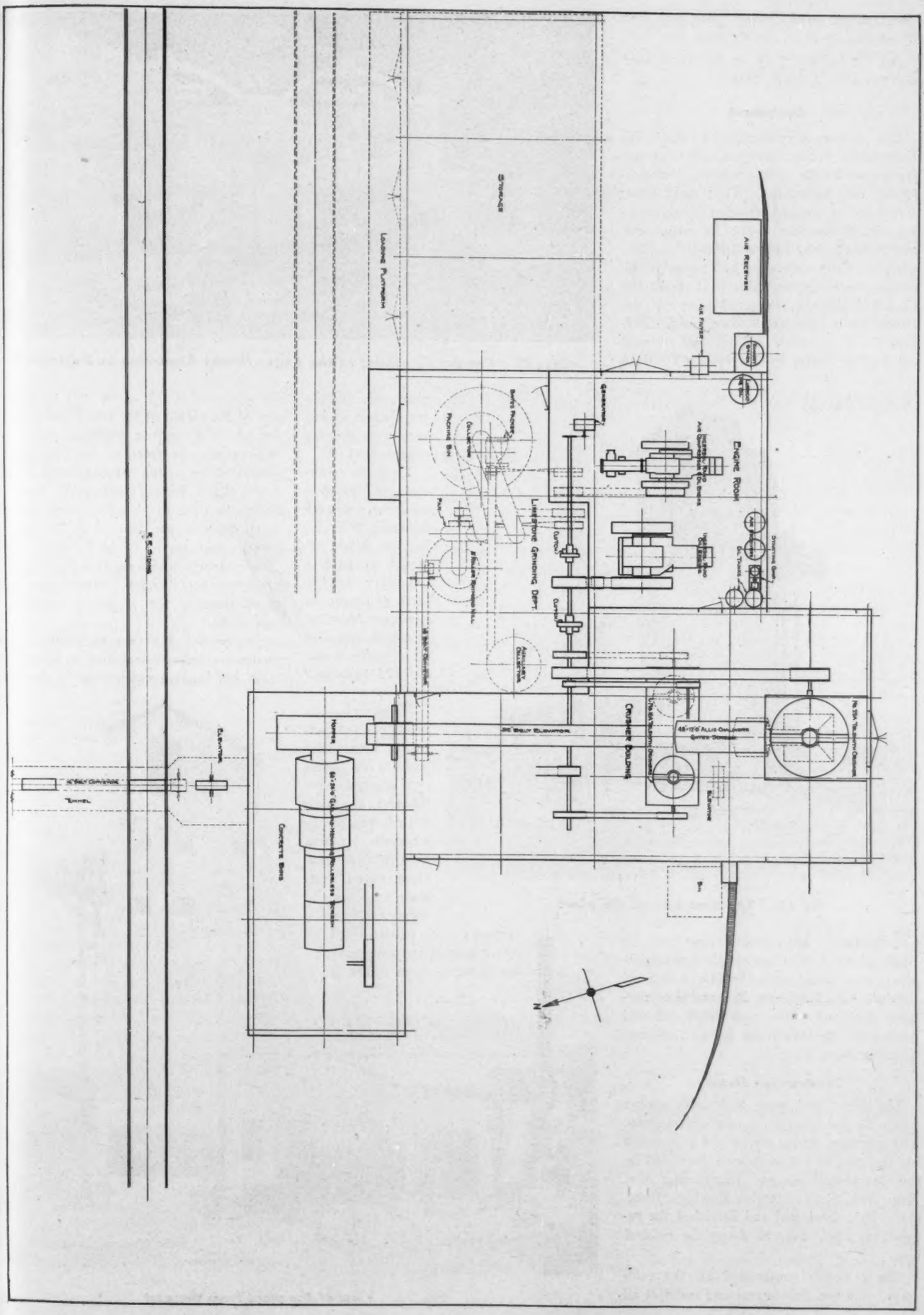


Fig. 18. General plan of the Harry T. Campbell Sons Co. plant. (Dotted lines indicate future machinery to be installed)

tire crushing plant, power plant and load the trucks.

All the buildings are of structural steel covered with "Lyonore Metal."

Equipment

The crushers were furnished by the Smith Engineering Works, Milwaukee, Wis.; scalping screen by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis.; main sizing screen by the Galland-Henning Manufacturing Co., Milwaukee, Wis.; air compressor and oil engines by Ingersoll-Rand Co., Philadelphia, Penn.; elevating and power transmission machinery by Robert L. Latimer and Co., Philadelphia, Penn.; belting by the Hewitt-Gutta Percha Rubber Corp., Buffalo, N. Y.; elevator buckets and railroad car loading chutes by McNamara Brothers Co., Baltimore, Md.; jack-hammer drills by Ingersoll-Rand and Gardner-Denver companies; sizing screen chutes by Maryland Steel Products Co., Baltimore, Md., and the structural steel and siding was fabricated and erected by the Maryland Metal Buildings Co., Baltimore, Md.

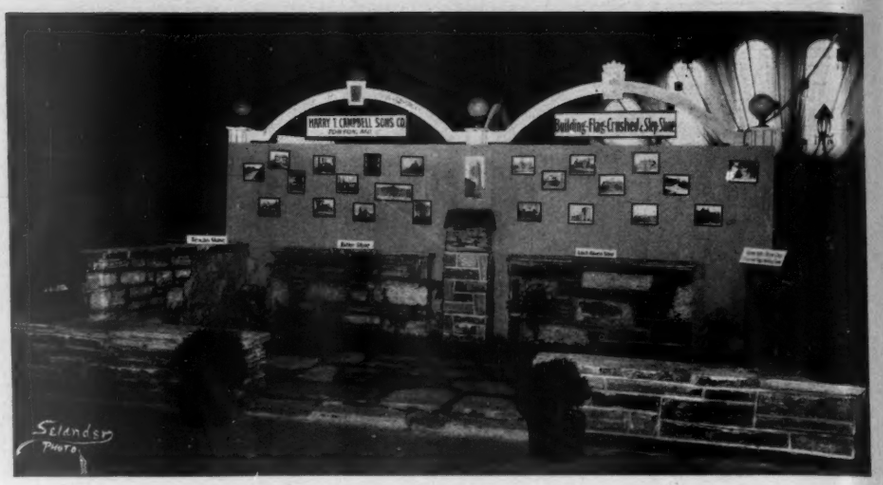


Fig. 16. Company's exhibit at the Better Homes Exposition in Baltimore

Fig 12. The west side of the plant

Construction Details

The stone bins were built with sliding forms by the company's own organization. The necessary jacks, forms and supervision for this part of the work were furnished by the MacDonald-Spencer Engineering Co., New York, N. Y. Dietrich Brothers, Baltimore, Md., fabricated and furnished the reinforcing steel. Fig. 15 shows the finished bins.

The company constructed all the reinforced-concrete foundations and installed all pipe work, machinery, electric wiring, etc., with its own organization.

The new plant was put into operation the first week in April, 1928. As laid out, it was expected to have a capacity of 120 tons of concrete stone per hour but in actual operation the capacity is easily 175 tons per hour.

As previously mentioned, the company's contracting business has forced the crushed-stone business as such into the background. It was thought the new plant would produce sufficient stone for the company's own needs as well as for market for some time, but it seems from contracts already secured that there will be little if any of the output of the new plant available for sale. To assure a continuance of service to old customers, therefore, the company has purchased one of the old established crushed stone plants, located within the limits of Baltimore City, which will provide an additional 400 tons per day and will be used to furnish quick service to the Baltimore trade.

In conjunction with the two quarries noted previously the company operates two additional quarries for producing building or face stone.

Quarry No. 2 known as Rustic Quarry produces a very unusual stone in texture and color and is used extensively in dwellings,

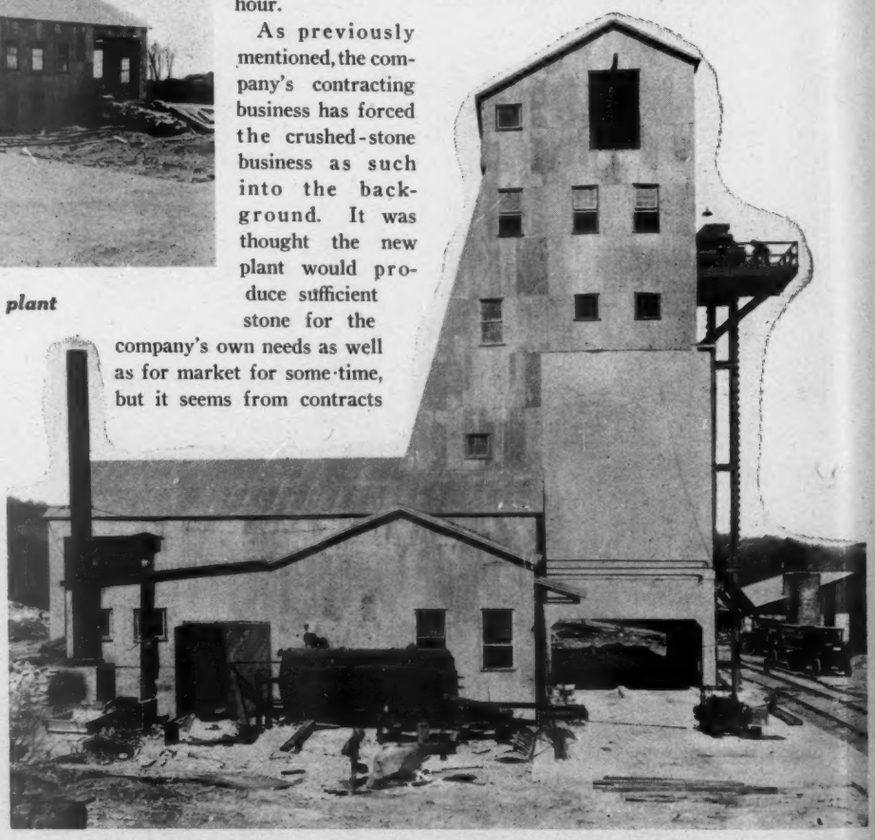


Fig. 14. View of the plant from the east

churches, driveway entrances, flagstone walks, etc.

Quarry No. 4 known as the Butler Quarry produces one of the finest face stones in the state and is used extensively in the construction of stone dwellings of the better class. This stone was used in the construction of such buildings as the new Baltimore City College and the Church of the Blessed Sacrament, Chevy Chase, Washington, D. C.

The officers of the company are Bruce S. Campbell, president; Harry Guy Campbell, treasurer; and Miss F. S. Campbell, secretary.

The writers laid out and prepared design and detail drawings for the complete plant.

Mines and Quarries Establish Notable Safety Records

ESPECIALLY NOTEWORTHY instances of the long-continued operation of large mines and quarries without injuries to employes are revealed in the announcement of the leading participants in the National Safety Competition held during the calendar year 1927 under the auspices of the Bureau of Mines, Department of Commerce. A large Michigan iron mine, two nonmetallic mineral mines located in Illinois and Ohio, and 27 quarries and open-pit mines located in Texas, Kansas, Pennsylvania, California, Alabama, Indiana, New York, Minnesota, Kentucky, Maryland, Ohio and Michigan were operated throughout the year without a single accident involving loss of working time on the part of an employe. Two hundred and fifty-six mines and quarries, representing 31 states, were represented in the contest. The total amount of exposure to hazard was 91,919,812 man-hours. In addressing congratulatory letters to the winning mines or quarries in each group of contestants, Secretary Hoover of the Department of Commerce declared that the achievement represented a definite contribution to the personal welfare of industrial workers and marked a forward step in the elimination of unnecessary accidents in American industry. Commendatory letters were written by Director Scott Turner, of the Bureau of Mines, to the various mines and quarries awarded honorable mention in the contest.

The holding of the National Safety Competition in 1927 marked the third consecutive year of this notable endeavor to reduce, through the medium of friendly competition, the number of personal injuries in the mines and quarries of the United States. Competing companies were grouped into five classes, namely, anthracite mines, bituminous coal mines, metal mines, nonmetallic mineral mines, and quarries and open-pit mines. To the winning company in each group was awarded the bronze trophy Sentinels of Safety, the gift of *The Explosives Engineer.*

The competition for the trophy was restricted to mines employing at least 50 men underground and to quarries and open-pit mines employing at least 25 men in the pit.

The best record among mines producing nonmetallic minerals other than coal was established by the Marquette Cement Manufacturing Co. at the company's limestone mine at La Salle, La Salle County, Ill. This mine was operated without a lost-time accident in 1927. During the year the employes worked 205,601 man-hours.

Honorable mention, in the nonmetallic mineral mine group, was given the Ironton cement rock mine of the Alpha Portland Cement Co., Ironton, Ohio; the Missouri Portland Cement Co. limestone mine, Cement City, Mo.; the Manheim cement rock mine of the Alpha Portland Cement Co., Manheim, W. Va., and the Southard gypsum mine of the United States Gypsum Co., Southard, Okla.

The leading plant among quarries and open-pit mines was the Mitchell limestone quarry, at Mitchell, Lawrence County, Ind., operated by the Lehigh Portland Cement Co. The Mitchell quarry and crusher were operated without a lost-time accident in 1927; its volume of exposure was 308,886 man-hours.

In the quarry and open-pit mine group, honorable mention was given the following contestants:

Ormrod limestone quarry, of the Lehigh Portland Cement Co., Ormrod, Penn.

Union Bridge limestone quarry, of the Lehigh Portland Cement Co., Union Bridge, Md.

Security cement rock quarry, of the North American Cement Corp., Security, Md.

Union Limestone Co. quarry, Hillsville, Penn.

Bath limestone quarry, of the Lehigh Portland Cement Co., Bath, Penn.

White Haven sandstone quarry, of the General Crushed Stone Co., Whitehaven, Penn.

Louisville Cement Co. cement rock quarry, Speed, Ind.

Texas Portland Cement Co. limestone and shale quarry, Dallas, Tex.

Kansas Portland Cement Co. limestone and shale quarry, Bonner Springs, Kan.

Ash Grove Lime and Portland Cement Co. limestone quarry, Chanute, Kan.

Pennsylvania-Dixie Cement Corp. Plant No. 6 cement rock and limestone quarry, Nazareth, Penn.

Iola limestone quarry, of the Lehigh Portland Cement Co., Iola, Kan.

Cowell Portland Cement Co. lime rock quarry, Cowell, Calif.

Alabama Portland Cement Co. limestone quarry, Birmingham, Ala.

Lehigh Lime Co. (Mitchell) limestone quarry, Mitchell, Ind.

Helderberg limestone quarry, of the North American Cement Corp., Howes Cave, N. Y.

York open-pit iron-ore mine, of the York Iron Mining Co., Nashwauk, Minn.

Sandts Eddy limestone quarry, of the Lehigh Portland Cement Co., Sandts Eddy, Penn.

Sandusky Cement Co. limestone quarry (silica), Toledo, Ohio.

Wickwire Spencer Steel Co. limestone quarry, Gasport, N. Y.

Pennsylvania-Dixie Cement Corp. Plant No. 4 cement rock quarry, Nazareth, Penn.

Olive Hill Limestone Co. crushed limestone quarry, Olive Hill, Ky.

Martins Creek No. 3 cement rock quarry, of the Alpha Portland Cement Co., Martins Creek, Penn.

Alabama Portland Cement Co. shale quarry, Birmingham, Ala.

Bellevue cement rock quarry, of the Alpha Portland Cement Co., Bellevue, Mich.

Consolidated Cement Corp. limestone quarry, Mildred, Kan.

Belgian Cement Imports Affect Security Mill's Business

FOREIGN COMPETITION is blamed for the big curtailment of output and employment at the plant of the North American Cement Corp. at Security, Md. John J. Porter, vice-president and general manager, recently at Hagerstown declared that so far this year the output has been cut 72,723 bbl., which has effected employment to the extent of 59,411 man-hours.

In an effort to meet competition the Security plant is being equipped with potash recovery equipment and machinery to utilize the waste heat for the production of the plant's own electric power, permitting a saving of approximately a quarter million dollars annually.—*Baltimore* (Md.) *American.*

Cement Color Deposit To Be Developed in Idaho

E. McMILLAN of Nogales, Ariz., has become financially interested in a silica deposit located about 15 miles south of Nampa, Idaho, near the Murphy branch of the Short Line railway, and will soon be ready to put the product on the market as a cement paint. It can be given any tint or color desired, and when put on a concrete or cement surface it soon hardens, becoming a part of the cement surface.

The A. E. Lindsey garage was given a coat of the silica wash recently, adding much to the appearance of the building. It costs much less than calcimine and appears to be superior in every way. With the silica deposit is a small per cent of bauxite from which aluminum ware is made, which appears to act as a binder, helping to hold the silica in solution, making a creamy wash.

Mr. McMillan expects to create an extensive market for the cement paint and will make his headquarters in Nampa.—*Nampa* (Idaho) *Free Press.*

Another Patented Process for Making High Calcium Finishing Hydrate

Ernest O. Schnell, of St. Louis, Mo., Patents Process Based on Use of Bentonite with Urea as a Protective Colloid

THIS invention relates generally to a finishing lime and the process of making the same, and more particularly to a high plastic, hydrated finishing lime which is produced from high calcium or any other kind of limestone. The following is also taken from the patent specification and claims:

High calcium and certain other kinds of limestone are unfit for making high plastic, hydrated finishing lime for various reasons which are very well known, and the object of this invention is to utilize these limestones to make the desirable high plastic finishing lime. The finishing limes now on the market are made out of dolomitic limestones exclusively, their average chemical composition being 50% $CaCO_3$ and 50% $MgCO_3$. In burning these so-called high magnesium limestones there is obtained CaO and MgO. In the following hydration the CaO becomes $Ca(OH)_2$, whereas the MgO remains as such. In mixing these finishing limes with water, MgO, a coarse material, almost insoluble in water, swells gradually but slowly, and the result after soaking for from 12 to 24 hours is a lime putty of such consistency that it can be cut out of the mortar box in large pieces, piled up in large pieces, piled up in the hod, and readily discharged therefrom to the mortar board. It is of such plasticity that it slides off the trowel and "stays put." The easy working and far spreading qualities of these finishing limes enable the plasterer to do good and fast work with the least energy, but these finishing limes have to be soaked for from 12 to 24 hours to get such consistency, handling and working qualities.

All the other types of limestones (except the above-mentioned high magnesium limestones) are absolutely unfit for making finishing lime for the following reasons:

An Attempt to Explain Lack of Plasticity in High Calcium Limes

In burning and hydrating same there is obtained at least 80% $Ca(OH)_2$, and in the case of a high calcium limestone even 99.5%. As soon as these limes are mixed with water a doughy mass is obtained, which turns very soon into a tough and, from the standpoint of the plasterer, hopeless material, because $Ca(OH)_2$, a very fine, flour-like powder, very soluble in water, is present to excess, and that coarse insoluble powder MgO with its characteristic physical properties and functions is practically absent. This lime cannot be handled in the prescribed manner and cannot be applied with satisfactory results. It sticks to the mortar box, the shovel and the hod. It "works short," it "pulls" and it "rolls up under the trowel." Since there is a large waste of time and labor, the plasterers have always rejected these limes.

So far as I am aware, no one has ever produced a finishing lime out of such types of limestones, nor has there ever been any finishing lime on the market made out of such types of limestone.

I have discovered that by adding amounts of colloidal clays and colloidal earths (bentonites) to an amount of high calcium limestone, or other limestone which is so constituted as to be unfit for making high plastic hydrated finishing lime, a high plastic, hydrated finishing lime may be produced. Ordinarily I do not include in finishing lime made in accordance with my invention a protecting colloid. However, in the event the limestone is poor in alumina and iron oxide, I find it necessary to include organic protecting colloids.

Addition of Bentonite

The bentonite overcomes the before-mentioned defects of such limes and accomplishes the same function as the MgO in the high magnesium limes, although in a different manner. The bentonite particles swell gradually (though relatively rapidly), absorbing a large quantity of water, and force the particles of the lime putty from each other to the utmost distribution. Every particle of the bentonite envelopes itself with a fine film of water, thus increasing the tension of the surface. The larger percentage of particles are transformed into a colloidal suspension. The result is a very highly plastic lime putty of the desired consistency with splendid working and spreading qualities.

The physical state of this lime putty, produced by the addition of bentonite, is not permanent. After a short time flocculation starts.

Whereas the $Ca(OH)_2$ acts in the beginning as a peptizing agent through its increasing the negative-hydrogen-concentration of the mass and thus prevents flocculation, it acts later, as soon as the swelling has reached its maximum and the bentonite particles are in the highest colloidal dispersion, as a flocculating agent through its increasing positive Ca-ion concentration.

Necessity for a Protecting Colloid

This process passes on quite slowly and depends upon many factors, for instance, the concentration of the mass, the temperature, and especially the presence of soluble salts in the bentonite clays, which form electrolytes that promote the flocculation. The bentonite even from different sections of the same deposit contains variable amounts of such electrolytes which, when in a larger amount present, flocculate the dispersed colloids. As a result the particles of the lime putty are drawn into closer physical contact with each other, the mass shrinks gradually, and the plasticity will be reduced. To eliminate these reactions, which diminish the plasticity, urea is used. I have found that traces of urea act here as a true protecting colloid and stabilize the physical state of the lime putty.

Each type of limestone requires its particularly suitable amount of bentonite and urea, according to its chemical composition and its physical properties.

The applicant adds colloidal clay of the bentonite type to a high calcium hydrated lime or to any other type of hydrated lime, which is so constituted as to be unfit for making finishing lime, for the purpose of making desirable finishing lime with its well characterized physical properties, as plasticity, consistency, easy handling and working, and far-spreading qualities.

In producing my improved finishing lime the limestone is burned just as its chemical composition requires, care being taken that the limestone is not overburned. The powdered lime is then hydrated with ½% emulsion of colloidal clay and earth in water. When the fresh hydrated lime has cooled to about 100 deg. F. at 3% mixture of dry colloidal clay and earth (300-mesh fine) is added thereto, after which the lime is cooled, dried, milled and blended.

In cases where the limestone is poor in alumina and iron oxide, traces of urea are added as a protecting colloid.

By my method herein described I utilize all the types of limestone which could not previously be used for making finishing lime, and by so doing I produce a high plastic finishing lime of even a higher grade of

plasticity and workability than the high magnesium finishing limes which are now exclusively on the market. All the finishing limes made by my process can be used immediately after being thoroughly wetted. It is not necessary to soak them, as in the case with the present high magnesium finishing lime. At the option of the workman, if he so prefers, the finishing lime made according to my process can be soaked in the customary manner.

Claims

1. The method of making a high plastic finishing lime which comprises burning the limestone, hydrating the powdered limestone with an emulsion of colloidal clay and earth in water and adding to the fresh hydrated lime when cooled an amount of a dry mixture of colloidal clay and earth.

2. The method of making a high plastic finishing lime which comprises burning the limestone, hydrating the powdered limestone with a ½% emulsion of colloidal clay and earth in water and adding to the fresh hydrated lime when cooled to about 100 deg. F. a 3% dry mixture of colloidal clay and earth.

3. The method of making a high plastic finishing lime which comprises burning the limestone, hydrated the powdered lime with a ½% emulsion of colloidal clay and earth in water, adding to the fresh hydrated lime when cooled to about 100 deg. F. a 3% dry mixture of colloidal clay and earth, and adding a protecting colloid.

4. The method of making a high plastic finishing lime which comprises burning the limestone, hydrating the powdered limestone with a ½% emulsion of colloidal clay and earth in water, adding to the fresh hydrated lime when cooled to about 100 deg. F. a 3% dry mixture of colloidal clay and earth, and adding traces of urea as a protecting colloid. —*United States Patent No.* 1,670,425, *granted to Ernest O. Schnell.*

Lime Dusts Claimed to Cause Attacks of Colds and Influenza

A SURVEY of the health of workers in dusty trades, undertaken by the United States Public Health Service, revealed that calcium (or lime) dusts inhaled by the workers are conducive to an abnormal number of attacks of diseases of the upper respiratory tract, especially colds, acute bronchitis, diseases of the pharynx and tonsils, and also influenza or grippe, according to a statement made public June 14 by the Surgeon General, Dr. Hugh S. Cumming.

The study was made in a portland cement plant, and was the first of a series covering the dusty trades. The results of the investigation indicated that the calcium dusts generated in the process of manufacturing portland cement "do not predispose workers to tuberculosis or to pneumonia." The full text of the statement follows:

The United States Public Health Service has completed a study of the health of workers in a portland cement plant, the first of a series covering the dusty trades. The study was undertaken to ascertain whether persons working in an atmosphere containing numerous minute particles of a calcium dust suffered any harmful effects. The investigation was conducted in one of the older, dustier plants, so that the effect of large quantities of the dust could be observed.

Records of Absences Kept

Records of all absences from work were kept for three years, and the nature of disabling sickness was ascertained. Physical examinations were made, X-ray films taken, and the character and amounts of dust in the atmosphere of the plant were determined.

The results of this investigation indicated that the calcium dusts generated in the process of manufacturing portland cement do not predispose workers to tuberculosis nor to pneumonia. The workers exposed to dust experienced, however, an abnormal number of attacks of diseases of the upper respiratory tract, especially colds, acute bronchitis, diseases of the pharynx and tonsils, and also influenza, or grippe. Attacks of these diseases serious enough to cause absence for two consecutive working days or longer occurred among the men in the dustier departments at a rate which was about 60% above that of the men in the comparatively non-dusty departments. Limestone dust appeared to be slightly more deleterious in this respect than cement dust.

Quarry Work Also Unhealthful?

Outdoor work in all kinds of weather such as was experienced by the quarry workers appeared to predispose to diseases of the upper respiratory tract even more than did exposure to the calcium dusts. In the outdoor departments of the plant, also, the highest attack rates of rheumatism were found. The study also indicated that work in a cement-dusty atmosphere may predispose to certain skin diseases such as boils, to conjunctivitis, and to deafness when cement dust in combination with ear wax forms plugs in the external ear. When the dust in the atmosphere is less than about ten million particles per cubic foot of air it is doubtful that the above-mentioned diseases and conditions would be found at greater than average frequency.

Modernization of plants and installation of ventilating systems are helping to solve the dust problem of the industry.—*United States Daily.*

Crushed-Stone Byproducts No Small Part of Indiana Limestone Uses

THE SALES OF STONE for construction from the quarries of the Bedford-Bloomington oolitic limestone district, Lawrence and Monroe counties, Indiana, in 1927, as reported to the United States Bureau of Mines, Department of Commerce, by the producers, amounted to 13,572,950 cu. ft., valued at $16,407,170. This was a decrease of 4% in quantity compared with 1926. These figures include 5,445,970 cu. ft. of rough blocks, valued at $3,461,369; 5,268,060 cu. ft. of sawed and semi-finished stone, valued at $4,685,844, and 2,858,920 cu. ft. of cut stone, valued at $8,259,957.

Besides the high grade stone quarried chiefly for construction, considerable stone (amounting to 423,320 tons, valued at $381,455, in 1927) used for concrete, road metal, flux, riprap, rubble, glass making, agriculture, etc., is produced in these counties. This grade of stone showed an increase of 4% in quantity over 1926.

Stone sold by quarry operations to the finishing mills of the district and dressed and resold by them in 1927 amounted to 1,670,470 cu. ft., valued at $3,646,445, an increase of 11% in quantity over 1926. The total sales by these plants included sawed stone, 728,000 cu. ft., valued at $704,732; semi-finished stone, 35,030 cu. ft., valued at $58,056; cut stone, 907,440 cu. ft., valued at $2,883,657, and represent a considerable increase in sawed stone, a small increase in semi-finished stone and a decrease in cut stone.

The accompanying tables show the output of the district for the quarries and finishing mills, for 1926 and 1927, by classes of stone:

LIMESTONE SOLD BY PRODUCERS IN THE BEDFORD-BLOOMINGTON DISTRICT, LAWRENCE AND MONROE COUNTIES, IND., 1926 AND 1927, BY CLASSES

Class		Quantity—1926	Value	Quantity—1927	Value
Construction:					
Rough blocks	cubic feet	5,747,510	$3,510,665	5,445,970	$3,461,369
Sawed	cubic feet	4,982,780	4,654,126	5,268,060	4,685,844
Semi-finished	cubic-feet	513,460	1,047,692	(1)	(1)
Cut	cubic feet	2,927,740	8,850,665	2,858,920	8,259,957
Total construction	cubic feet	14,171,490	$18,063,148	13,572,950	$16,407,170
Other stone	short tons	405,630	354,703	423,320	381,455
Grand total (quantities approx., in short tons)		1,432,480	$18,417,851	1,407,360	$16,788,625

(1) Semi-finished stone included under sawed stone.

INDIANA OOLITIC LIMESTONE SOLD BY MILLS NOT OPERATED BY QUARRY COMPANIES IN THE BEDFORD-BLOOMINGTON DISTRICT, LAWRENCE AND MONROE COUNTIES, IND., 1926 AND 1927, BY CLASSES*

	Sawed		Semi-finished		Cut		Total	
Year	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value
1926	†402,250	†$414,416	(†)	(†)	1,109,000	$3,658,855	1,511,250	$4,073,271
1927	728,000	704,732	35,030	$58,056	907,440	2,883,657	1,670,470	3,646,445

*Includes some stone purchased by quarry operators and milled and resold.
†Semi-finished stone included under sawed stone.

Hints and Helps for Superintendents

A safety clock aids the no-accident drive

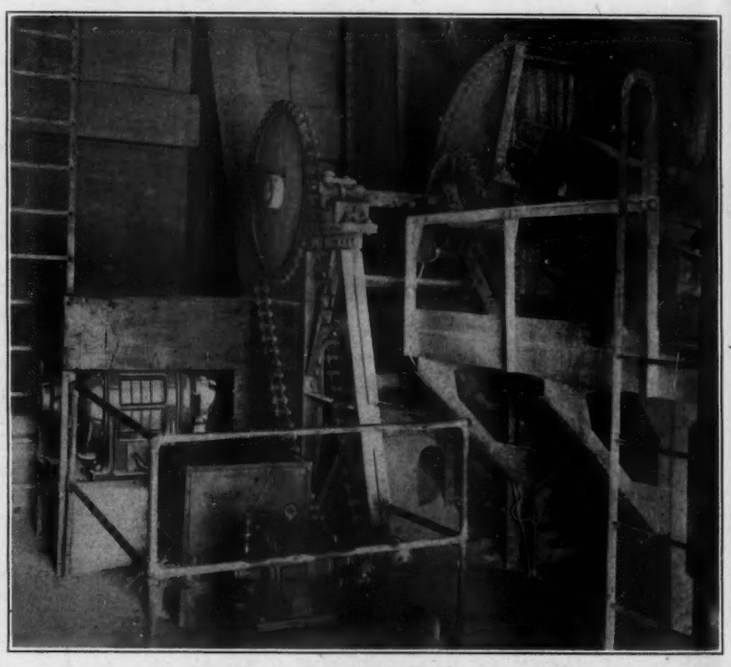
Safety Clock for the Bulletin Board

WITH the present safety campaign on in the cement mills, each plant is looking for new methods of calling the attention of the men to the no-accident drive. The illustration shows the "Safety Bulletin Board" of the Martin's Creek plant of the Alpha Portland Cement Co. This board has been placed right at the entrance to the plant so that all the employes must unconsciously see it as they go by, and the bulletin board feature will cause them to look at it for announcements. The center of the board carries a large clock face numbered from 0 to 31 for the days of the month, with one hand to indicate the date and another hand to show the date of the last accident. Of course if no accident has occurred during the month the second hand stands at zero. To emphasize the time since the last accident more completely, there is a little notice within the clock face, stating the number of days since the last accident. By the use of this board the plant officials are able to keep the safety idea before the men, and all the employes of the mill soon learn to strive to keep the red accident hand always at zero. Similar bulletin board schemes have been tried at other cement mills with success.

Feeder for Regulating Flow of Material to Machines

IN a recent issue of the *Journal of the American Ceramic Society,* there is a paper by T. B. Huestis on "Recent Progress in Electrical Application for the Heavy Clay Industry," which embodies a number of features which are applicable to the industries in the rock products field. A feeder for regulating the flow of material to crushers and other machines for which a number of uses could be found in our field, is described as follows:

"The problem of regulating the flow of clay through crushers, dry pans, pug mills, and brick machines so that all the machines work continuously with the minimum amount of attention has been studied for years. The illustration shows an automatic feed control for a hammer mill. One motor drives the mill itself, another motor drives the conveyor delivering clay to the mill. The conveyor motor is variable in speed and its speed is controlled by the current flowing in the armature circuit of the hammer-mill motor. Therefore, if the mill gets a smaller amount of clay than normal even for an instant, the motor draws less current, the conveyor motor speeds up and increases the amount of clay fed to the mill. The speed remains up as long as it is necessary to maintain a normal flow of clay to the mill. Conversely, an overload of clay causes the conveyor to slow down.



Automatic feed control for hammer mill

Blasting Rocks in Crushers

By W. L. Home
Mining Engineer, Pine Plains, N. Y.

THE advisibility of blasting to dislodge or break up stones which have become stuck fast in a crusher so that they will not go through and can not be pulled out is a question about which many operators are entirely too timid in taking the initiative. The best answer, of course, is not to feed such large stones to the crusher. However, we all know that it does happen and that stones that should go through sometimes hang up, causing considerable delay.

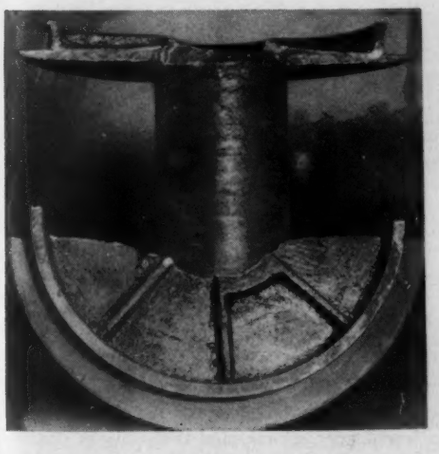
As an actual illustration, on a large scale excavation in hard, tough trap rock, where the rock is to be crushed, it is most difficult to blast the stone sufficiently fine for the 42x48-in jaw crusher. The shovel has a 1¾-yd. dipper and it is a set rule that no stone that will not easily pass through the dipper ever goes to the crusher. Any stone that easily passes the dipper will ordinarily go through the crusher provided everything goes right and the rock will crush at all. A stone was sent to this crusher that should ordinarily have gone through, but it just fitted between the jaw plates and was so tough that instead of crushing it bounced up and down. The crusher labored to crush it and became so hot it was necessary to shut the machinery down. The stone was then found to be stuck fast, the crusher could not be started in either forward or reverse direction and unsuccessful attempts were made for four solid hours to pull the stone out. Permission was then given to blast the stone. A black hole was drilled and just sufficient dynamite put in to cover the cap. The charge was set off and exactly 20 minutes after permission was given to

blast the crusher was running again. At this plant one hour's delay represents about $150. The total loss by the delay was over $600, so shooting was well worth while.

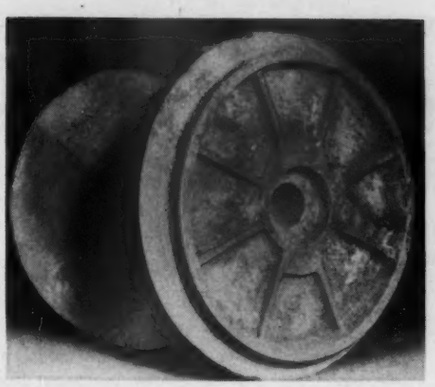
Before permission is given an operator to blast in a crusher the question is usually asked by the powers above, "How much powder will you have to use?" To insure caution this question should be reversed to, "How little powder can you use?" A little powder properly placed will do a lot of damage. The time required to load such a hole is almost nothing and if the rock does not break on the first shot it has at least been weakened and but a few minutes are required to repeat the operation with a charge slightly heavier. By shooting stone out of a crusher in this manner the crusher is comparatively safe and much lost time can be saved. However, should a second shot be required, be sure that the hole is cool before attempting to load it. There is but little danger to a crusher when blasting out stone provided you always attempt to see how little powder you can possibly use and it surprising how small this amount is.

Repairing Hoisting Drums by Welding

QUARRY operators occasionally may have the misfortune of finding the drums on their hoisting equipment cracked, and when such is the case, they may profit by the experience of a Pacific coast lumber concern which suffered a similar accident. One side of the cast steel drum of one of the company's donkey engines cracked all the way across, and finally broke entirely. This threatened to create an expensive delay and it was decided to attempt to make a repair by welding. The welder was called, and had the drum preheated, and then proceeded to weld the broken part in position. When the work was finished and the drum allowed to cool, it was found to be in correct alignment and was put back into service immediately. In addition to being strong and durable the appearance of the finished



Donkey engine drum broken completely in two



The drum repaired so that the break can hardly be found

weld was such that it could hardly be told from the original metal of the drum casting.

Repairing drums of this sort is not an uncommon operation. The picture below shows a 72-in. drum about 30 in. wide. There were five ribs broken and a 78-in. crack around the flange, as well as two cracks in the drum itself. The welder operator prescribed preheating and rewelding the drum with high test welding rod. It required 40 hours of actual welding to finish the work, and the drum was found to be in perfect condition after the preheating fire had been allowed to die out. Even with this large labor item, the saving made on the repair was considerable.—*Oxy-Acetylene Tips.*

A 72-in. drum with the cracks marked for repairing

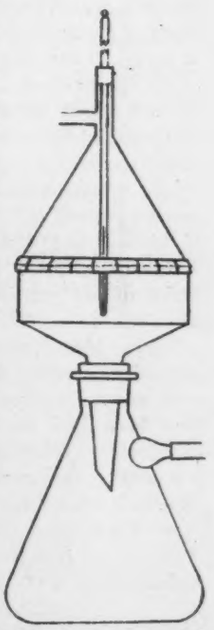
Warning for Low Beam

A PIECE of cloth swinging from a low beam in a crushing plant or sand plant may frequently save cracking heads against the beam. The cloth causes a man to duck his head involuntarily, and in so doing he passes easily under the low beam. Such a warning saved the editor a number of bumps on a recent visit to the crushing plant of the Riverside Lime and Stone Co., Lyons, Ill.

Rapid Method of Drying Laboratory Preparations

IT is usually desirable and sometimes imperative to dry a preparation rapidly. The usual methods are slow and restricted in use; e. g., the steam-oven is unsuitable for substances that melt below 100 deg., and many substances are hygroscopic or deliquescent and must not be left exposed to the open air to dry.

The apparatus here described is effective in rapidly drying most types of substances, and is very easily set up. The substance is collected and washed in a Büchner funnel with the help of suction in the usual manner. A filter funnel with a short stem and provided with a side-tube is fitted over the Büchner funnel—the junction being made air-tight by means of a broad elastic band—as shown in the diagram. A thermometer is fitted into the stem of the funnel and so arranged that the hulb is just above the substance. The side tube is connected to a supply of warm, dry air.



Flask for rapid laboratory drying

The air may be warmed by aspirating it through a heated metal spiral, or through a metal flagon fitted with a tube through which the air enters and which reaches to the bottom of the flagon, and with an exit tube leading to the dryer. The flagon is heated on a gas ring. The air is dried by means of calcium chloride before it enters the heater.

A stream of warm, dry air is then aspirated through the apparatus by means of the filter pump, and the substance dries rapidly. The temperature registered by the thermometer is easily regulated by adjusting the temperature of the heater and the rate of flow of air through the apparatus.

If the substance oxidizes in air it may be dried in a stream of warm, dry nitrogen obtained by passing the air through alkaline sodium hyposulphite (hydrosulphite) solution and then over calcium chloride.

The use of this apparatus reduces the time of drying to a minimum; it may sometimes be used with advantage in place of porous tile or a vacuum dessiccator; and it avoids the necessity of transferring the preparation to other vessels for drying, with consequent loss of material.—M. Hyman in *The Journal of the Society of Industrial Chemistry*, England.

National Slag Association's Annual Meeting

THE 11th annual meeting of the National Slag Association was held on June 8 at the offices of the association in the Leader building, Cleveland, Ohio. C. L. McKenzie, president of the Duquesne Slag Products Co. of Pittsburgh was re-elected president of the organization; C. E. Ireland of the Birmingham Slag Co., Birmingham, Ala., was again named vice-president and H. J. Love will remain as secretary-treasurer with offices in the Leader building.

City Building Permits Practically the Same as in 1927

TOTAL BUILDING PERMITS granted in 210 cities during the month of May amounted to $317,832,900, according to the 210 city building departments to the F. W. Dodge Corp. The above figure was 10% ahead of the April, 1928, record and was 5% in excess of the May, 1927, record. Ninety of the cities recorded last month showed increased permit valuations and 120 showed decreases when compared with their May, 1927, records.

Last month's total brought the amount of permits granted in these cities since the first of this year up to $1,444,900,000, as compared with $1,455,120,400 for the corresponding period of last year, the decrease being only 1%.

During May there were 19 cities showing more than a million dollars in permit valuations and an increase of 20% or more over their May, 1927, records. The "honor roll" cities were: Washington, Atlanta, Chicago, Evansville, Indianapolis, Boston, Pontiac, Duluth, Kansas City, Mo., St. Louis, Albany, New York City, Dayton, Oklahoma City, Providence, Memphis, Houston, Spokane and Madison, Wis.

Michigan City Uses Sledge-Hammer Methods to Reduce Prices

EFFORTS of the city of Lansing, Mich., to get gravel at a figure below the $2.25 per yd. price set in bids handed in some time ago, were rewarded recently when the mayor and city clerk were authorized to enter into a contract with the Scarlet and Earl Sand and Gravel Co. at the above figure, less 15c. per yd., cash discount.

At the same time the city passed a resolution directing the next council to put a sum not to exceed $50,000 in the 1929 budget for the purchase of a gravel pit and machinery.

By the terms of the contract with the Scarlet and Earl company, the city is to have the option on all the sand and gravel taken from the pit, and if this is required in city construction, the gravel is to be delivered to any part of the city at the above figure. The gravel must come up to the specifications of the city engineer.

The contract agreed upon is to run for one year.—*Lansing* (Mich.) *Journal.*

H. J. Schweim Returns to United States Gypsum Co.

H. J. SCHWEIM, recently chief engineer and secretary of the now defunct Gypsum Industries, Inc., has returned to the United States Gypsum Co. as development engineer. He will carry out the same line

Henry J. Schweim

of development and promotional work for this company that he was doing for the association. Mr. Schweim occupied a similar position with the company when he was asked to succeed the late Virgil G. Marani as chief engineer of the Gypsum Industries.

Stewart Sand Co., Kansas City, in New Merger

OUT of negotiations completed June 14 resulted the merger of two large Kansas City, Mo., companies engaged in the construction of building materials and allied fields.

They were the Stewart Sand Co. and the Coen Building Material Co. The organization will be known as the Stewart Sand and Material Co. John Prince, president of the Stewart company, will become president, and Wilber F. Coen, president of the company which bears his name, will be vice-president of the new corporation. The merger became effective June 15.

As a result of the merger, eight material yards, scattered over Greater Kansas City, will come under one operating control. Employes of both organizations will be absorbed into the working force of the Stewart Sand and Material Co.

There will be little overlapping of the various activities of the two companies. The Stewart Sand Co. has been in the sand business with ready-mixed mortar and plaster as other items. The Coen company has dealt in the multitudinous items which make up the general building material company's sales list. The interests of both companies will be retained by the new one which they form. The Stewart offices in the City Bank building will be the offices of the new corporation. —*Kansas City* (Mo.) *Times.*

Iowa Quarry Reopened

THE DECORAH STONE PRODUCTS Co., Decorah, Iowa, of which R. Bucknell is secretary and treasurer, has leased the quarry to Dickinson and Stark, of Des Moines, which firm will crush the rock for the paving on No. 55, between Ossian and Decorah. The firm is shipping equipment here. A spur track will be run from the Milwaukee tracks to the quarry. They expect to ship out by train enough rock for the work between Ossian and Calmar and part way to Decorah. The balance will be trucked out. They have contracted for 40,000 cu. yd. and expect to take out 75,000 yd.—*Decorah* (Iowa) *Opinion.*

Boston Sand & Gravel Lighter's Loss Makes Historic Legal Case

THE UNITED STATES SUPREME COURT has ordered reargued in the fall the case of the Boston Sand and Gravel Co. against the government to recover for damages due to the loss of the lighter *Cornelia* as the result of a collision in Boston harbor, in a dense fog during the war, in front of the submarine nets, with the torpedo boat destroyer *Bell,* after having the case under consideration for a considerable length of time.

The case had been presented by Assistant Attorney General George R. Farnum of Boston for the government and John W. Davis, former solicitor-general of the United States and Democratic candidate in 1924 for President, appeared for the Boston concern.

The point before the supreme court was whether interest could be recovered on the award of damages from the date of the loss, and the case was regarded as a precedent which would control many other claims of a similar character involving large sums of money.

In ordering the case reargued, the supreme court has adopted a procedure followed very seldom, and then only in matters of great importance.—*Boston* (Mass.) *Traveler.*

Editorial Comment

Smaller, but Surer, Profits

A summary and comparison of business profits from 1925 to 1927, inclusive, was made in a recent *Monthly Review* of the Second Federal Reserve District (New York City headquarters). The chart accompanying this summary is reproduced below. This is interesting to ROCK PRODUCTS readers in checking the profits record of the building-supply producing industries with that of other industries. Another thing that strikes us is that the chart shows that there is little or no obvious relation between the profits of various groups of industries, except possibly the telephone and the other utilities groups, which show a steady increase in profits for the whole three-year period.

One outstanding development in the building supply industries served by ROCK PRODUCTS, during the three-year period covered by these statistics, is the tendency toward mergers of numerous small operations into large ones. An undoubted result of such mergers is often a reduction of present profits, for earning power is capitalized and dividends are converted to fixed charges—interest on bonds, for example. The necessity of meeting these fixed charges regularly unquestionably has a stabilizing influence in the industry, and is one of the benefits of mergers.

The owner of a relatively small individual business seldom looks beyond his own connection with it, and there is a tendency for him to make the most possible out of the business when he can, anticipating always lean periods when he will not make anything. The operator of a large organization with a load of fixed charges to meet is content with a smaller profit, but wishes to conduct the business so that profit will be assured from year to year, indefinitely. Consequently, the large operator is always complaining of the piratical methods of his smaller competitors.

Undoubtedly, the small individual owner would be better off in the long run, and his business would always be in sounder condition, if he would adopt the same methods and place an adequate capitalization on his property and pay his estate the same fixed charges he would if he were operating it for someone else. What profits he made over and above such fair treatment of his estate would then be commensurate with the profits of his larger competitors, rather than intangible or even imaginary, as now is often the case.

We are *not* among those who believe mergers of competitors are the cure-all for the industrial ills of the rock products industries, or any others. In nearly every instance the advantages of mergers, or management on a large scale, are offset by certain disadvantages. The steadying and stabilizing of profits is probably the most important and the most significant advantage because it is more and more taking all business out of the gambling classification and putting it in one susceptible of scientific analysis and diagnosis. But that is merely because big corporations are usually conducted on sound economic principles while many small ones are not. So far as actual *efficiency* in management goes, the small, closely-held individualistic corporation has every opportunity to capture the prize from its larger competitors and usually does. Moreover, times of stress are invariably times of mergers, and boom times mean numerous new small operators, again.

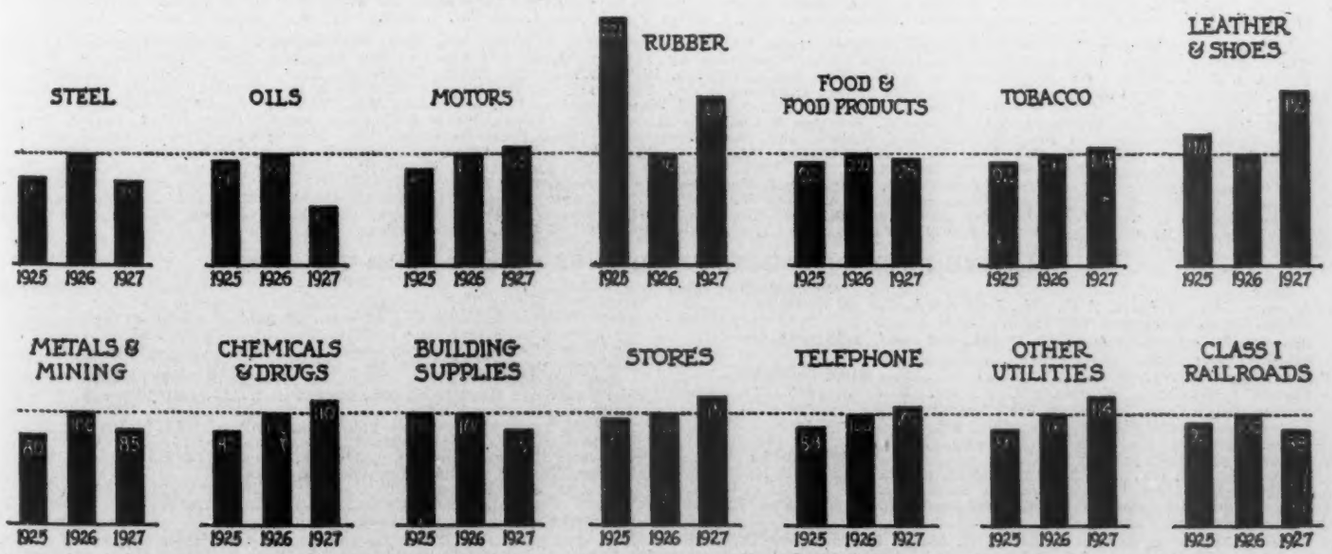


Chart showing profits from business in 1925, 1926 and 1927 in various industries with 1926 profits as standard

Financial News and Comment

RECENT QUOTATIONS ON SECURITIES IN ROCK PRODUCTS CORPORATIONS

Stock	Date	Bid	Asked	Dividend
Allentown P. C. com.[37]	12-30-27	3	7	
Allentown P. C. 1st 6's[37]	12- 5-27	90	92	
Alpha P. C. new com.	6-18-28	44	46	75c qu. Apr. 14
Alpha P. C. pfd.[2]	6-18-28	117	.....	1¾% qu. June 15
Amer. Aggregate 6's, bonds	6-20-28	101	103	
Am. L. & S. 1st 7's[32]	2-24-28	101¾	102½	
American Silica Corp. 6½'s	6-21-28	98	99½	
Arundel Corp. new com.	6-20-28	45¼	45¼	50c qu. Apr. 2
Atlantic Gyp. Prod. (1st 6's & 10 sh. com.)[10]	6-20-28	No market		
Atlas P. C. com.[3]	6-18-28	40	43	50c qu. June 1
Atlas P. C. pfd.	6-18-28	46	.....	66⅔c qu. July 2
Beaver P. C. 1st 7's[30]	6-14-28	98	100	
Bessemer L. & C. Class A[4]	6-15-28	34	36	75c qu. May 1
Bessemer L. & C. 1st 6½'s[4]	6-15-28	100½	101¼	
Boston S. & G. com.[10]	6-15-28	78	82	$1 qu. July 2
Boston S. & G. 7% pfd.[10]	6-15-28	84	86	1¾% qu. July 2
Boston S. & G. 1st pfd.[10]	6-15-28	94	96	2% qu. July 2
Canada Cem. com.[43]	6-16-28	28	28½	
Canada Cement pfd.[43]	6-16-28	99	100	1.62½ qu. June 30
Canada Cement 5½'s[21]	6-15-28	101	102	
Canada Cr. St. Corp. 1st 6's[11]	6-15-28	96	99	
Certainteed Prod.	6-19-28	43¾	44½	$1 qu. July 1
Chas. Warner com.	6-18-28	34½	37½	50c qu. Apr. 10
Chas. Warner pfd.	6-18-28	109	.....	1¾% qu. Jan. 26
Cleveland Stone new st'k.	6-19-28	65	77	50c Sept. 1
Consol. Cement 1st 6½'s, A[42]	6-20-28	95	99	
Consol. Cement 6½ notes[24]	6-20-28	92	96	
Consol. Cement pfd.[42]	6-20-28	55	65	
Consumers Rock & Gravel 1st 7's[15]	6- 1-28	100	102	
Coosa P. C. 1st 6's[32]	12-28-27	65	75	
Coplay Cem. Mfg. 1st 6's[40]	6-16-28	90	.....	
Coplay Cem. Com.[40]	6-16-28	12½	.....	
Coplay Cem. pfd.[40]	6-16-28	72½	.....	
Dewey P. C. 1st 6's[30]	6-20-28	99	101	
Dolese & Shepard[7]	6-20-28	155	158	$2 qu. July 2
Edison P. C. com.[39]	5-19-28	50c	.....	
Edison P. C. pfd.[39]	5-19-28	1	.....	
Edison P. C. bonds[39]	5-19-28	75	.....	
Fredonia P. C. 1st 6½'s[32]	12-28-27	97	101	
Giant P. C. com.[28]	6-18-28	26	30	
Giant P. C. pfd.[28]	6-18-28	30	34	3½% June 15
Ideal Cement com.	6-19-28	142	146	$1 qu. July 1
Ideal Cement pfd.	6-19-28	111	113	$1.75 qu. July 1
Indiana Limestone 6's	6-18-28	96⅛	97	
International Cem. com.	6-19-28	64	66	$1 qu. June 29
International Cem. bonds 5's	6-18-28	96¾	97¼	Semi-ann. int. payable June 15
Kelley Is. L. & T. new st'k.	6-19-28	53	54	62½c qu. July 2
Lawrence P. C.	6-18-28	105	110	2% qu.
Lehigh P. C.[2]	6-19-28	49½	50	
Lehigh P. C. pfd.	6-19-28	109	.....	1¾% qu. July 2
Lyman-Richey 1st 6's, 1921[15]	6-15-28	99	100	
Lyman-Richey 1st 6's, 1935[15]	6-15-28	98	100	
Marblehead Lime 1st 7's[14]	6-15-28	100	.....	
Marbleh'd Lime 5½'s, notes[14]	6-15-28	98	.....	
Mich. L. & C. com.	6-18-28	35	.....	
Mich. L. & C. pfd.[6]	6-19-28	40	.....	1¾% qu. July 15
Missouri P. C.	6-19-28	42	43	50c qu. May 1
Monolith P. C. com.[9]	6-14-28	15¾	16¼	8% ann. Jan. 2
Monolith P. C. pfd.[9]	6-14-28	9½	10	
Monolith P. C. units[9]	6-14-28	34¾	36¼	
National Cement 1st 7's[38]	6-15-28	99	101	
National Gypsum A com.[25]	6-20-28	28	30	
National Gypsum pfd.[25]	6-20-28	68	70	1¾% qu. Apr. 1
Nazareth Cem.[26]	6-16-28	30	32	75c qu. Apr. 1
Newaygo P. C.[1]	12-30-27	115	.....	
Newaygo P. C. 1st 6½'s[32]	2-11-28	120	.....	
New Eng. Lime pfd. A[45]	6-14-28	95	.....	
New Eng. Lime pfd., B[22]	6-15-28	97	99	
New Eng. Lime com.[22]	6-15-28	34	38	
New Eng. Lime 1st 6's[14]	6-15-28	98	100	
N. Y. Trap Rock 1st 6's	6-18-28	100¾	100¾	
North Amer. Cem. 1st 6½'s	6-16-28	86	88	
North Amer. Cem. units[19]	6-16-28	45	55	2 mo. per at 7%
North Amer. Cem. com.[19]	6-16-28	8	12	
North Amer. Cem. pfd.[19]	6-16-28	35	45	$1.75 qu. Aug. 1
North Shore Mat. 1st 5's[35]	6-20-28	99	.....	
Northwestern States P. C.[37]	11-21-27	165	170	
Pac. Coast Cem. 6's. A	6- 1-28	.....	98	
Pacific P. C. new com.[5]	6-14-28	.....	25	
Pacific P. C. pfd.	6-15-28	.....	79	1.62½ qu. Apr. 5
Pacific P. C. notes[5]	3-22-28	99	.....	3% s.-a. Oct. 15
Pacific P. C. 6's	6-15-28	.....	100	
Peerless Egyp'n P. C. com.[21]	6-18-28	2	3	
Peerless Egyp'n P. C. pfd.[21]	6-18-28	90	95	1¾% qu. July 1
Peerless Egyp'n P. C. war.[21]	6-18-28	No market		
Penn-Dixie Cem. 1st 6's[29]	6-20-28	99½	100½	
Penn-Dixie Cem. pfd.[29]	6-19-28	94½	95	1.75 qu. July 1
Penn-Dixie Cem. com.	6-19-28	24	24½	50c qu. July 1
Petoskey P. C.	6-20-28	11½	12¾	1½% qu.
Pittsfield L. & S.[33]	10- 8-27	.....	100	
Pittsfield L. & S. com.[33]	10- 8-27	.....	25	
Riverside P. C.	6-15-28	180	.....	50c mo. June 1
Rockland-Rockport Lime 1st pfd.[16]	5-17-28	.....	100	3½% s.-a. Feb. 1
Rockland-Rockport Lime 2nd pfd.[16]	5-17-28	.....	60	3% s.-a. Feb. 1
Rockland Rockport Lime com.[16]	5-17-28	No market		1½% qu. Nov.2
Sandusky Cem.	6-19-28	205	205	$2 qu. Apr. 2
Santa Cruz P. C. bonds	6-15-28	105¾	.....	6% annual
Santa Cruz P. C. com.	6-15-28	89	92	$1 qu. Apr. 1
Schumacher Wallboard com.	6-15-28	17¼	18	50c May 15
Schumacher Wallboard pfd.	6-15-28	.....	25	
Southwestern P. C. units[44]	6-14-28	270	.....	
Superior P. C., A	6-15-28	47¼	48¼	
Superior P. C., B[26]	6-14-28	34	36	
Trinity P. C. units[27]	6-16-28	150	155	
Trinity P. C. com.[27]	6-16-28	50	.....	
U. S. Gypsum com.†	6-20-28	78	79	40c qu. June 30
U. S. Gypsum pfd.	6-20-28	126	.....	1¾% qu. June 30
Universal G. & L. com.[3]	6-20-28	.....	2	
Universal G. & L. pfd.[3]	6-20-28	.....	16	1½% Feb. 15
Universal G. & L., V.T.C.	6-20-28	No market		
Universal G. & L. 1st 6's[3]	6-20-28	.....	60	
Upper Hudson Stone 1st 6's, 1951[32]	12-28-27	92	.....	
Vulcanite P. C. 1st 7½'s[32]	12- 5-27	105	109	
Whitehall Cem. Mfg. com.[36]	6-15-28	150	.....	
Whitehall Cem. Mfg. pfd.[36]	6-15-28	98	.....	
Wisconsin L. & C. 1st 6's[35]	6-20-28	100	.....	
Wolverine P. C. com.	6-19-28	5½	6¾	15c qu. May 15
Yosemite P. C., A com.[44]	6-14-28	6	7	

†10% stock dividend, July 10. U. S. Gypsum common holders of record July 14 have the right to purchase new common at $20 a share to the extent of 50% of holdings. Right expires Oct. 1. Payments of 25% are due: Oct. 1, 1928; Feb. 1, June 1, and Oct. 1, 1929.

[1]Quotations by Watling, Lerchen & Hayes Co., Detroit, Mich. [2]Quotations by Bristol & Willet, New York. [3]Quotations by Rogers, Tracy Co., Chicago. [4]Quotations by Butler, Beading & Co., Youngstown, Ohio. [5]Quotations by Freeman, Smith & Camp Co., San Francisco, Calif. [6]Quotations by Frederic H. Hatch & Co., New York. [7]Quotations by F. M. Zeiler & Co., Chicago, Ill. [8]Quotations by Ralph Schneeloch Co., Portland, Ore. [9]Quotations by A. E. White Co., San Francisco, Calif. [10]Quotations by Lee Higginson & Co., Boston and Chicago. [11]Nesbit, Thomson & Co., Montreal, Canada. [12]E. B. Merritt & Co., Inc., Bridgeport, Conn. [13]Peters Trust Co., Omaha, Neb. [14]Second Ward Securities Co., Milwaukee, Wis. [15]Central Trust Co. of Illinois, Chicago. [16]J. S. Wilson, Jr., Co., Baltimore, Md. [17]Chas. W. Scranton & Co., New Haven, Conn. [18]Dean, Witter & Co., Los Angeles, Calif. [19]Hoit, Rose & Troster, New York. [20]Quotations by Bond & Goodwin & Tucker, Inc., San Francisco. [21]Baker, Simonds & Co., Inc., New York. [22]Pirnie, Simons and Co., Springfield, Mass. [23]Blair & Co., New York and Chicago. [24]A. B. Leach and Co., Inc., Chicago. [25]Richards & Co., Philadelphia, Penn. [26]Hincks Bros. & Co., Bridgeport, Conn. [27]J. G. White and Co., New York. [28]Mitchell-Hutchins Co., Chicago, Ill. [29]National City Co., Chicago, Ill. [30]Chicago Trust Co., Chicago. [31]McIntyre & Co., New York, N. Y. [32]Hepburn & Co., New York. [33]Boettcher & Co., Denver, Colo. [34]Kidder, Peabody & Co., Boston, Mass. [35]Farnum, Winter and Co., Chicago. [36]Hanson and Hanson, New York. [37]S. F. Holzinger & Co., Milwaukee, Wis. [38]McFetrick and Co., Montreal, Que. [39]Tobey and Kirk, New York. [40]Steiner, Rouse and Stroock, New York. [41]Hornblower & Weeks, Chicago. Ill. [42]E. H. Rollins, Chicago, Ill. [43]Jones, Heward & Co., Montreal, Que. [44]Tenney Williams & Co., Inc., Los Angeles, Calif. [45]Tifft Bros., Pittsfield, Mass.

INACTIVE ROCK PRODUCTS SECURITIES (Latest Available Quotations)

Stock	Price bid	Price asked
Asbestos Corp. of Amer., 5 sh. pfd., 5 sh. com.[1]	$1 for the lot	.....
Atlanta Shope Brick and Tile Co[1]	25c	.....
Benedict Stone Corp. (cast-stone), 50 pfd., 390 com.[2]	$400 for the lot	.....
Benedict Stone Corp. 1st 7's 1934[3]	.....	86
Blue Stone Quarry, 60 sh.[2]	$10¼ for the lot	.....
Eastern Brick Corp., 7% cum. pfd.[1]	40c	.....
Eastern Brick Corp. (sand lime brick) com.[3]	40c	.....
International Portland Cement Co., Ltd., pfd.	30	45
Globe Phosphate Co., $10,000 1st. mtg. bonds, $169.80 per $1000 paid on prin.	$50 for the lot	.....
Iroquois S. & G. Co., Ltd., 2 sh. com., 3 sh. pfd.[1]	$12 for the lot	.....
Knickerbocker Lime Co.[4]	105	.....
Missouri Portland Cement Co., 7% serial bonds	104¾	104¾
Olympic Portland Cement Co.[7]	.....	£1⅗
Phosphate Mining Co.[3]	1	.....
River Feldspar & Mill'g Co., 50 com., 50 pfd.[1]	$200 for the lot	.....
Rockport Granite Co., 1st 6's, 1934	90	.....
Simbroco Stone Co.[2]	12	12
Simbroco Stone Co.,[9] 40 sh. pfd., par $50; 40 sh. com., par $10 (40 units)	$2 per unit	.....
Simbroco Stone Co.,[10] 10 sh. pfd., par $50	$10.25 per sh.	
Southern Phosphate Co.[6]	1¼	.....
Standard Gypsum Co., 10 sh. pfd., 5 sh. com.[1]	$35 for the lot	.....
Tensas Gravel Co., 180 sh. com.[1]	$1 for the lot	.....
Tidewater Portland Cement Co., 3000 sh. com.	$6525 for the lot	.....
Vermont Milling Products Co. (slate granules), 22 sh. com. and 12 sh. pfd.[8]	$1 for the lot	.....
Wabash Portland Cement Co.[1]	60	100
Winchester Brick Co., pfd., sand lime brick[8]	10c	.....

[1]Price obtained at auction by Adrian H. Muller & Sons, New York. [2]Price obtained at auction by R. L. Day and Co., Boston. [3]Price obtained at auction by Weilupp-Bruton and Co., Baltimore, Md. [4]Price obtained at auction by Barnes and Lofland, Philadelphia, on April 4, 1928. [5]Price obtained at auction for lot of 50 shares by R. L. Day and Co., Boston, Mass. [6]Price obtained at auction by Wise, Hobbs and Arnold, Boston, Mass. [7]Neidecker and Co., London, England. [8]Auction sale of $1000, Barnes & Lofland, Philadelphia, March 31, 1928. [9]Price at auction May 2, 1928, by Wise, Hobbs & Arnold, Boston. [10]Price at auction, June 6, 1928, R. L. Day & Co., Boston, Mass.

First Public Offerings of Alpha Cement Common Stock

AN ADDITIONAL ISSUE of common stock (no par value) in the Alpha Portland Cement Co. was recently offered by Boettcher & Co., Denver, Colo. This offering of common stock is the only public financing in the history of the company.

Dividends now being paid at the annual rate of $3, payable quarterly. Transfer agent: Corporation Trust Co., Jersey City, N. J., Registrar: National City Bank, New York.

Capitalization	Authorized	Outstanding
Preferred stock 7% cumulative (par ($100)	$2,000,000	$2,000,000
Common stock (no par value)	1,000,000 shs.	711,000 shs.

Company—Incorporated January 29, 1910, in New Jersey, as successor to a company of the same name incorporated April 9, 1895. The original company started with one plant at Alpha, N. J., having an annual production of 200,000 bbl. Company has since grown until it now operates ten plants with an annual productive capacity of 12,500,000 bbl.

Directly, or through subsidiaries, the company owns and operates plants at the following locations: Jamesville and Cementon, N. Y.; Manheim, W. Va.; Bellevue, Mich.; La Salle, Ill.; Ironton, Ohio.; St. Louis, Mo.; two at Martins Creek, Penn.; and Birmingham, Ala. The last plant was acquired May 1, 1928.

Purpose—This additional common stock has been sold to finance purchase of the plant at Birmingham, Ala.

Earnings—Earnings for the past six years adjusted to capitalization outstanding on December 31, 1927, were as follows:

Year	Gross sales	Net income	Bal. for com. after pref.div.	Per sh.com.
1922	$15,070,868	$1,617,359	$1,477,359	$2.49
1923	20,629,502	3,028,399	2,888,399	4.87
1924	20,203,840	3,085,851	2,945,851	4.97
1925	20,128,921	3,858,246	3,718,246	6.28
1926	17,250,792	2,603,498	2,463,498	4.16
1927	19,226,270	2,359,286	2,219,286	3.75

The above earnings do not reflect earnings to be derived from the new plant at Birmingham, Ala., nor the increase in common stock incident to this acquisition. In addition to the above earnings the company has spent $10,586,055 during this 6-year period in improvements and additions, while property account on the books has been increased by only $4,492,131.

Assets—Balance sheet as of December 31, 1927, shows net tangible assets amounting to $27,677,063, equivalent after deducting par value of preferred stock, to $43.34 per share of common stock then outstanding. Net current assets totaled $8,376,024, equivalent to $10.76 per share on the common stock, after deducting par value of the preferred stock.

Dividends—Company has an unbroken dividend record dating from 1916, in which year 2% was paid upon the then outstanding $100 par value stock; 1917 to 1919, 3%; 1920, 6%; 1921, 4½%; 1922, 3%; 1923 to April 15, 1926, 6%. In December, 1925, a 25% stock dividend was paid. In May, 1926, the outstanding $100 par value common stock was exchanged for three no par common shares. Regular quarterly dividends of 75 cents a share have since been paid on the new stock.

Lehigh Portland Earnings

LEHIGH PORTLAND CEMENT CO. for the year ended May 31 reports a net profit of $3,955,041 after depreciation and federal taxes. For the year ended November 30, 1927, the company reported a net profit of $4,118,844 after the above charges.—*Chicago* (Ill.) *Journal of Commerce.*

International Cement Prosperous

FOLLOWING RECORD EARNINGS in the first quarter of the year, indicated second quarter results of the International Cement Corp. will be such that net income for the first six months period should be equal to more than two-thirds the annual common dividends of $4. With actual figures compiled only for April, it is impossible to tell just what net for the second quarter will be. However, it can be stated that net income will probably be considerably ahead of the corresponding period of 1927, when net amounted to $1,142,000, or $1.64 a share on the 562,500 common shares then outstanding. In the first three months of 1928, International reported profits of $1,067,000, equal to $1.51 a common share, against $1.22 in the similar 1927 quarter.

With substantially increased plant facilities and a similarly larger market, it is felt that 1928 will prove to be a banner year for the company. Preliminary estimates from authoritative sources place net profits for the year at between $7 and $8 a share on the 618,811 shares of common stock. This would be the largest profits shown in any one year and is the inevitable result of several years of conservative but steady expansion of production facilities. In 1927 the company earned $4,554,000, or $6.90 a common share.

Previous rumors of a merger between International and either Lehigh or the Penn-Dixie interests are quite without foundation. While at one time International interests were in a receptive mood for a consolidation with one of the larger companies in the field, subsequent events have made a merger of this sort very unlikely. The company has now built up a system which favorably compares with leaders in the field. Its system now embraces practically the entire territory east of the Rocky Mountains. The South American and Cuban subsidiaries have proved their worth, and earnings are about sufficient for common dividend requirements.

When the federal flood control work gets under way, it is reasonable to suppose that substantial amount of the contracts for cement will be awarded International because of the favorable geographical location of several of its plants. Among its plants are two in Texas, two in Alabama, and one each in Kansas, Indiana and Louisiana.—*Wall Street News*, New York City.

Recent Dividends Announced

Atlas Portland Cement pfd. (quar.) ..... 66⅔c, July 2
Boston Sand and Gravel com. (quar.) ..... $1, July 2
Boston Sand and Gravel 7% pfd. (quar.) ..... 1¾%, July 2
Boston Sand and Gravel 1st pfd. (quar.) ..... 2%, July 2
Dolese and Shepard (quar.) ..... $2, July 2

American Silica Corporation Offers $1,000,000 Bonds

THE AMERICAN SILICA CORP., Ottawa, Ill., a merger of various silica sand producers in the Ottawa district, a notice of which was published in ROCK PRODUCTS, March 31, 1928, is offering through Blyth, Witter and Co., Chicago, $1,000,000 of first mortgage 6½% gold bonds, dated March 1, 1928, due March 1, 1943; interest payable semi-annually March 1 and September 1; Central Trust Co. of Illinois, Chicago, trustee. The bonds are in denominations of $500 and $1000. The total authorized is $1,250,000. The bonds are redeemable on any interest date in whole or in part at the option of the corporation on 60 days' notice at 105% and interest. A cumulative sinking fund based on output is provided for, which is calculated from present operations to be sufficient to retire this issue at maturity. Each bond, unless called for redemption, carries with it the right to purchase common stock at $10 per share at any time until March 1, 1933, in the ratio of 10 shares for each $1000 bond.

R. J. Beatty, president of the corporation, summarizes the operations and finances of the corporation as follows:

Company—The American Silica Corp. was recently organized as a Delaware corporation and has acquired or is about to acquire through purchase of fee or long term lease the major portion of the crude silica sand deposits in the Ottawa-Utica district in Illinois. These properties have been operated by a number of independent managements for periods in some cases as long as 25 years and the entire business of these various operators is being taken over by this corporation. The property of the corporation contains practically all the deposits in the district which are accessible to present transportation and subject to economic mining.

Business and Property—Silica is used in the production of steel castings, abrasives, glass, water glass, soaps, pottery, stucco and plaster. In its crude state silica sand is suitable for molds for steel castings, for sand blast, soaps and abrasives.

Deposits of silica in a condition sufficiently pure to have commercial value occur in limited amounts throughout the United States. The deposits in the Ottawa district have proved to be the ideal product for use by steel companies by reason of the high fusing point and the coarse round grains. In a questionnaire sponsored by the *American*

Foundrymen's Journal it was recently demonstrated that the consensus of opinion of over 250 steel foundries was that Ottawa sand was the most suitable for their molds. By reason of heavy transportation charges, sand is usually purchased by manufacturers from the nearest deposits, and in consequence practically the only sand used in the Chicago district has been Ottawa sand. Despite the high freight charges, however, silica from the deposits now controlled by the corporation has been sold as far east as Buffalo and as far west as California, which is a testimonial to the quality of the product. Among the customers of the predecessor operators are the American Steel Foundries Corp., the Illinois Steel Co., International Harvester Co., Hubbard Steel Foundry Co., National Steel Casting Co., Gould Coupler Co., the Bucyrus Co., the Buckeye Steel Casting Co. and the Falk Corp.

The properties of the corporation consist of approximately 1790 acres of sand deposits owned in fee or lease, all located in the vicinity of Ottawa, Ill., and accessible to transportation by the Chicago, Burlington and Quincy and the Chicago, Rock Island and Pacific railroads, together with necessary mining machinery, buildings and equipment. Ford, Bacon and Davis, Inc., independent engineers, have estimated that the properties owned and leased contain reserves of not less than 100,000,000 tons, which at estimated future output will be sufficient for operation for over 150 years. Leases in all cases are for periods of longer duration than the maturity of these bonds.

Security—These bonds will be secured, in the opinion of counsel, by a first mortgage on all the property of the corporation now owned or hereafter acquired. Ford, Bacon and Davis, Inc., have appraised the buildings, equipment and machinery at $532,251. The deposits owned, together with the leasehold values, have been appraised by representative local appraisers at $2,037,115. The total of these appraisals is $2,569.366, or over 2½ times the presently outstanding first mortgage bonds.

Earnings—Ford, Bacon and Davis, Inc., who have reported on the property, estimate that the earnings for the first five full years of operation will be as follows:

	1st Year*	2nd Year	3rd Year	4th Year	5th Year
Sales	$480,000	$500,000	$520,000	$540,000	$560,000
Operating expenses	219,000	220,650	228,250	235,850	243,500
	$261,000	$279,350	$291,750	$304,150	$316,500
Depreciation, royalties and local taxes	75,600	75,600	75,600	75,600	75,600
Net earnings available for interest, federal taxes, amortization and dividends	$185,400	$203,750	$216,150	$228,550	$240,900
Interest requirements on first mortgage bonds					65,000

*After an approprite period of reorganization.

The average net earnings for this period after depreciation will be $214,950, or over 3.3 times maximum interest requirements on these bonds. By reason of the fact that many of the constituent properties have been operated by sole proprietors without adequate accounting methods, a certificate of past earnings has been impossible to obtain. Haskins and Sells, certified public accountants, have reported on the gross sales of the properties for the four years prior to 1927, and Ford, Bacon and Davis, Inc., have estimated the expenses for this period on a consolidated basis. The projection of the latter figure against the gross sales provides an estimated average net income in excess of 2.6 times maximum interest charges on this issue.

Management—The management will be in the hands of men who have been identified with the present properties. The board of directors will consist of R. J. Beatty, director of the Inland Steel Co.; W. H. Hinebaugh, president of the Central Life Insurance Co. of Illinois; Carl M. Gottfried, formerly president of the Buffalo Rock Silica Co., and a representative of the bankers.

CAPITALIZATION OF THE AMERICAN SILICA CORP.

	Authorized	To Be Presently Outstanding
First mortgage 6½% gold bonds (this issue)	$1,250,000	$1,000,000
5-year 6% notes	163,100	163,100
7% cumulative preferred stock ($100 par)	500,000	365,500
Common stock (no par value), shares	60,000 sh.*	50,000 sh.

*10,000 shares of common stock have been reserved for the exercise of stock purchase rights attached to the present issue of first mortgage 6½% gold bonds.

New York Trap Rock Corp. Earnings

EARNINGS of the New York Trap Rock Corp., New York City, for the past three years are reported as follows:

EARNINGS OF NEW YORK TRAP ROCK CORP.

Calendar Years—	1927	1926	1925
Net operating profit	$2,504,261	$1,098,781	$ 911,784
Other income credits	38,009	99,248	147,483
Cross income	$2,542,270	$1,198,028	$1,059,266
Interest charges	444,828	182,658	199,954
Provision for depreciation and depletion	352,093	145,532	109,804
Provision for federal and state taxes	168,059	.....	.....
Other deductions	69,167	.....	.....
Net income	$1,508,123	$ 869,838	$ 749,508
Profit and loss credit	.....	18,241	.....
Total surplus	$1,508,123	$ 888,079	$ 749,508
Provision for contingencies	.....	.....	73,000
Federal tax, previous year	.....	79,750	39,122
Dividends on old preferred stock (redeemed)	.....	322,500	.....
Dividends on new preferred	116,667	.....	.....
Dividends paid minority stockholders	175,942	.....	.....
Other items applied to prior years	.....	21,477	8,125
Balance	$1,215,514	$ 464,351	$ 629,260
Surplus at beginning of year	*141,252	2,055,537	1,426,277
Profit and loss surplus	$1,356,766	$2,519,889	$2,055,537

*Adjusted to give effect to changes in capital structure.

New Canadian Sand and Gravel Consolidation

STEWART, SCULLY CO., Ltd., Mara and McCarthy and Watt and Watt, Toronto, Ont., are offering $1,200,000 7% cumulative convertible redeemable preference shares at 100 and dividends together with a bonus of one share of no par value common with each share of preference.

Preference shares are fully paid and non-assessable, entitling the holder to preferential cumulative cash dividends at the rate of 7% per annum payable quarterly at any branch of the companies' bankers in Canada, (first dividend to be paid August 15, 1928). Preferred as to assets over other class shares, and to the extent of 110% of par value thereof and dividends in case of voluntary liquidation. Redeemable all or part by purchase in the open market at the lowest available price not exceeding the redemption price, or on any dividend date upon 30 days' notice at $110 and dividend. Convertible at the holder's option into common shares at any time on the basis of 2½ common shares without par value for each one preference share unless previously called for redemption. In the event of preference shares being called for redemption the conversion privilege may be executed at any time up to 10 days' prior to date fixed for redemption. An annual sinking fund is provided for the retirement of this issue of 20% of net earnings after providing for the depreciation, depletion, income taxes and dividends on preference shares. Transfer agent: Chartered Trust & Executor Co., Toronto. Registrar: Canadian Bank of Commerce, Toronto.

Capitalization	Authorized	Issued
7% cumul. conv. redeem. preference shares (par $100)	$1,200,000	$1,200,000
Common shares (no par value)	*100,000	70,000

*30,000 common shares reserved for conversion of preference shares.

Listing—It is expected that application will be made to list the preference and common shares on the Toronto Stock Exchange.

Company—Upon completion of the present financing the company will own and operate all the businesses and undertakings of the following companies either through ownership of the entire capital stock of the said companies or by direct ownership of all their business and undertakings: (1) Durham Stone & Sand Co., Ltd., Durham, Ont.; (2) Waterford Sand & Gravel Co., Ltd., Waterford, Ont.; (3) Superior Gravel Co., Ltd., Paris, Ont.; (4) Fuller Gravel, Ltd., Fuller, Ont., and (5) Paris Sand & Gravel Co., Ltd., Paris, Ont.

The capacity of the company's five plants is 1,600,000 tons of stone and sand, and 15,000 tons of stone dust per annum.

Earnings—It is estimated that earnings for 1928 before providing for depreciation and depletion and federal income tax will amount to $303,400. The management estimate the depreciation, depletion and income tax at $79,000 which deducted leaves $224,000, which is equivalent to nearly three times the annual dividends on the preference shares and after providing for the preference dividends is equivalent to about $2 per share on the 70,000 issued no par value common shares.

Bonner Springs Mill Dedicates Trophy

Plant of Kansas Portland Cement Company Unveils Safety Monument on Saturday, June 2

PRACTICALLY the entire town of Bonner Springs, Kan., attended the unveiling and dedication of the Portland Cement Association safety trophy at the plant of the Kansas Portland Cement Co. on Saturday, June 2.

J. A. Lehaney, vice-president, Kansas Portland Cement Co.

At 10 o'clock the mill was closed down and the working force joined the hundreds of visitors in the ceremony commemorating the achievement of a year's operation in 1927 without a lost time mishap. The Bonner Springs band furnished music as the crowd assembled and during the actual unveiling. The ceremonies were held in the beautiful park surrounding the office building, where the handsome monument had been placed.

Louis J. Wheeler, superintendent of the Bonner Springs plant, introduced A. J. R. Curtis, assistant to general manager of the Portland Cement Association, who formally presented the trophy. Following acceptance of the trophy for the mill, Mr. Wheeler introduced Congressman U. S. Guyer, of the second district of Kansas, who delivered the oration. Congressman Guyer found keen delight in the achievement of modern industry in guarding its workmen against harm and likened the progress of industrial safety work to the great advances made recently in the field of science. He admonished workmen to fully appreciate their homes and opportunities and to waste no time in coveting those in high places.

Speakers at the Dedication Ceremony

Other speakers were:

Louis S. David, mayor of Bonner Springs.
Chas. F. Hogan, vice-president of the International Cement Corp., New York City.
J. A. Lehaney, vice-president of the Kansas Portland Cement Co., Kansas City.
J. A. Wheeler, vice-president of the Texas Portland Cement Co., Dallas, Tex.
Wm. Moeller, general superintendent of the Texas and Kansas Cement Co., Dallas, Tex.

There were also present to witness the occasion, two directors of the Kansas Portland Cement Co., Baxter MacLain, of Kansas City, Mo., and Frank Merstetter, of Kansas City, Kan. Telegrams of congratulation were received from T. Avnsoe, general superintendent of the International Cement Corp., New York City; C. N. Peters, treasurer, New York; J. B. John, chairman of the committee on accident prevention of the Portland Cement Association, and others.

Congressman U. S. Guyer, who delivered the principal address

The new safety trophy in its permanent place on the grounds of the Bonner Springs plant

Unveiling the trophy won by the Bonner Springs plant, Kansas Portland Cement Co.

Among the wires was one from the U. S. Weather Bureau at Kansas City, reading, "Have done our best." The weather was perfect.

As Mr. Curtis concluded his remarks, with which the trophy formally passed into the hands of the winners, Mrs. L. J. Wheeler pulled the cord which released the drape, which fell slowly as the band played "America."

William Moeller, general superintendent

After the ceremony luncheon was served to hundreds of friends and visitors at long picnic tables erected on the grounds. After luncheon the mill was put in operation as a demonstration to the visitors, some 500 of whom were escorted through the various departments in small groups.

The absence of H. Struckmann, president of the company, was keenly felt by his old friends and employes, and many wishes for his early and complete recovery were heard.

Eastern Meeting Reveals Growth of Safety Interest

By R. B. Fortuin

Pennsylvania-Dixie Cement Corp., Nazareth, Penn.

AT FIRST I considered it my misfortune —but later found it was my rare good luck to be called upon to act as chairman of the Regional Safety meeting of the cement mills of the Lehigh Valley, which was held at Easton, Penn., on May 25.

The meeting was an outstanding affair in all three of the following particulars:

First: As a school of instruction in safety work and a source of the latest ideas, based largely on collective experience.

Second: As an opportunity for broadening influence on the operating men present, many of whom stick closely to the mill environment and need more contact with well informed outsiders.

Third: As a means of replenishing enthusiasm for their work—particularly safety activities among the workmen.

In the short space of three hours after the meeting opened it was possible for me to jot down 33 important facts or suggestions relating to our safety work which were either new to me or had escaped their full share of attention in our organization. Undoubtedly many others were able to accumulate a much greater number of ideas, but I have recorded the following which, I believe, sum up a large proportion of the constructive suggestions available on this subject:

1. The cement industry has reduced lost time accidents by 37% and fatal accidents by 33% in the last year.

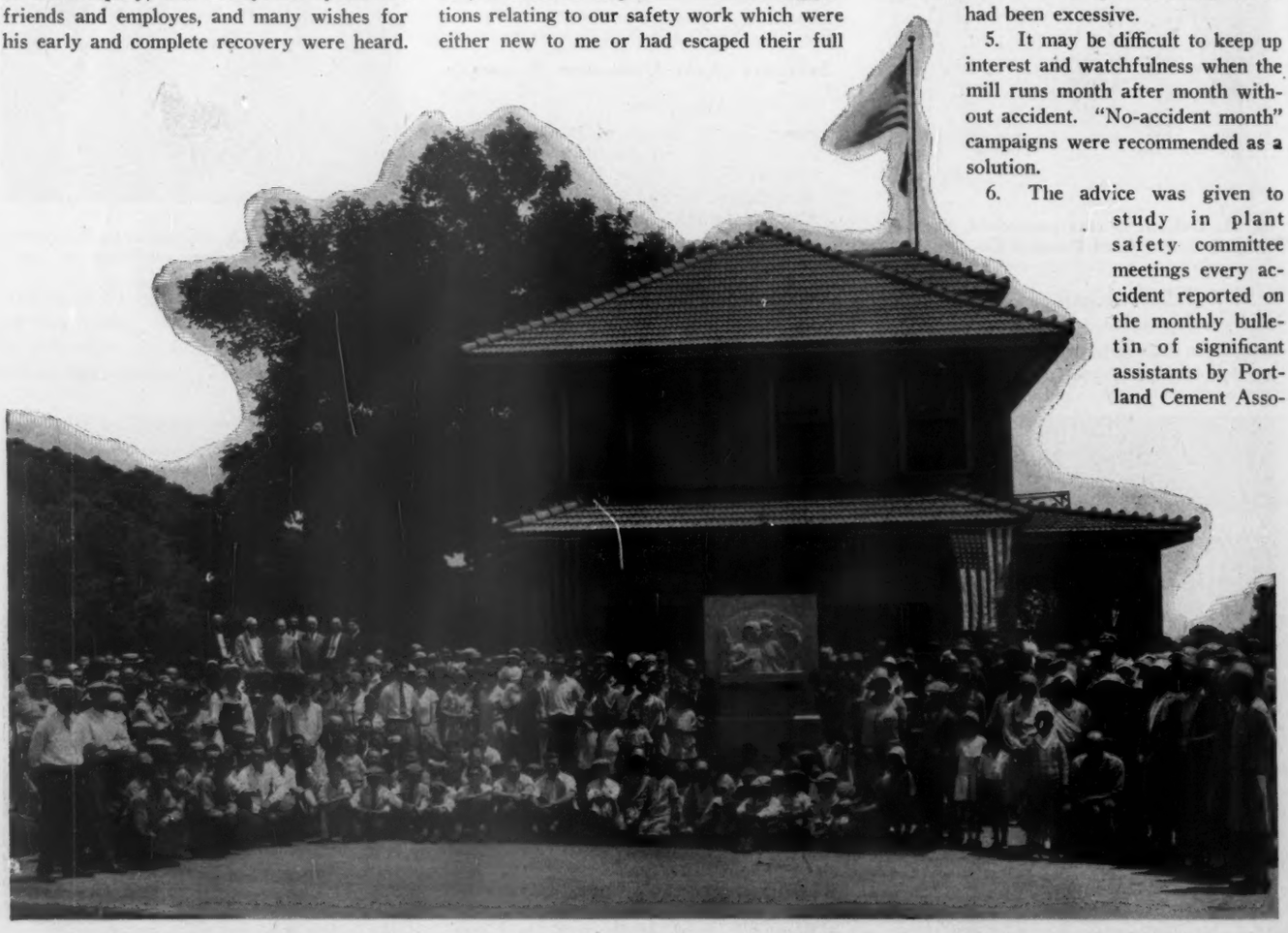
2. The mills of the Lehigh Valley, constituting about one-seventh of the entire group, suffered 213 lost time accidents (16% of the total) and three fatal accidents (10% of the total).

3. The mills of the Lehigh Valley contributed only 8% of the accidents suffered in the June, 1927, safety campaign.

4. To save itself from being nicknamed as a "one-eyed plant" one of the plants in the Valley put in a compulsory goggle rule and almost eliminated eye accidents, which had been excessive.

5. It may be difficult to keep up interest and watchfulness when the mill runs month after month without accident. "No-accident month" campaigns were recommended as a solution.

6. The advice was given to study in plant safety committee meetings every accident reported on the monthly bulletin of significant assistants by Portland Cement Asso-



The employes of the Kansas plant and the residents of the town of Bonner Springs who turned out for the dedication ceremony of the 1927 safety trophy

ciation, visualizing each accident to find whether it could occur in your plant. If necessary, steps should then be taken to head it off.

7. A bonus system was described, whereby 1% of the monthly wage total is paid to every employe of each department running a month without accident.

8. Emphasis was placed on the part played by the plant doctor in keeping down the number of lost time accidents by prompt and intelligent work with and encouragement to injured men.

9. Physical examination of each new employe was recommended by several speakers as a sure way to select and place men where they will not get hurt.

10. Men should be argued out of the feeling that it is effeminate or babyish to take care of scratches, so as to prevent infection.

11. Plant safety committees should be governed by a carefully prepared program covering their work over a considerable period, rather than merely operate, as many do, from day to day.

12. Workmen should be assigned, as far as practicable, to investigate accidents, as important training for them.

13. In making up accident records advantage should not be taken of technicalities to improve the report. Be sportsmanlike.

14. Advertising is as necessary to sell safety as it is to sell anything else—don't neglect it.

15. The interest of the management in mill safety work is one of the biggest factors.

16. Many electrical accidents can be headed off in the design stage, others by proper installation, and still others by good maintenance, although careful operation is the most important factor.

17. Keep dangerous mechanical and electrical machinery out of the reach of the curious, as much as possible. Many of them will even remove a guard in order to get hurt.

18. Plenty of light, without dark shadows, will help materially.

19. Good housekeeping in the plant avoids confusion and promotes safety.

20. Every plant safety committee should prepare a set of electrical operating rules. The power department should assist.

21. Safety locks with individual keys should be used by all repairmen and others working on machinery and electrical equipment.

22. Be sure that all metal non-current-carrying parts are well grounded. The "grounds" must be maintained.

23. Never place dependence on electrical cable insulation. A man was killed recently by leaning against a supposedly insulated cable.

24. Have the power department start and stop all large motors except in emergency "push button" stops.

25. The advice of individual explosives manufacturers and that of the Institute of Makers of Explosives, Wilmington, Del., should be secured on all questions pertaining to storing and handling of explosives.

26. Placards and handbooks of the above, giving valuable precautions for quarrymen, should be obtained for the use of all quarry crews.

27. If any man in your mill does not believe fully in safety work, you can never have a really safe mill until you change his viewpoint or discharge him.

28. Greatest care must be taken to keep safety committee meetings effective. They

R. B. Fortain

should be conducted on set rules of order and not allowed to become talkfests.

29. The great value of first aid training for every man in the mill may be seen from the fact that rarely if ever does a man with such training get hurt.

30. Train men to avoid screw conveyors—never go closer than necessary. Never leave covers off or walk or jump on covers.

31. If there is superstition around the plant—possibly the belief that accidents come in threes, or some other similarly false notion—progress in accident prevention will depend on talking this down.

32. While it is true that an excuse or at least an alibi is conceived for almost every accident that ever happened, the alibi has no value as an accident preventative.

33. The foreman who avoids alibis and is willing to take full responsibility for the accidents in his department is the man who is on the road to a bigger job.

The value of our regional safety meetings is such that we believe in them as one of the most beneficial features of our work to prevent injury to our men in the operation of the mills. It is a wise man who is sensible enough to profit by his own experience, particularly when it involves personal misfortune; the man is both wise and fortunate who can profit from the experience of others with whom he is shoulder to shoulder in the industry.

Registration List of Easton Meeting

Alpha Portland Cement Co., Easton, Penn.
Henry B. Anderson, combustion engineer.
Louis Anderson, chemical engineer.
Frank Barron, foreman.
Jacob Brunn, quarry foreman.
J. C. Cook, machinist.
Clinton Cope, Sr., electrician.
Moses A. Evert, foreman machine shop.
Daniel J. Flynn, general representative.
R. Frame, insurance manager.
Frank Gordon, pipe fitter.
H. L. Gus, machine shop foreman.
W. W. Hamilton, plant engineer.
Mr. Hanks.
John H. Hawk, carpenter.
Floyd E. Ike, carpenter.
Arthur Kindt, foreman.
H. A. King.
Stewart P. Lewis, engineering department.
N. Mack.
Vernon Mack.
Mr. Magee.
H. Merrick.
F. W. McElroy.
F. G. McKelvy.
William L. Patterson, superintendent of mines.
Ezra Pysher, shovel operator.
Elmer E. Pysher.
F. A. Rader, electrical foreman.
Raymond Seas, Sr., engineer.
James F. Siegfried, electrical engineer.
W. H. Smith, engineering department.
Henry Vanderbilt, kiln-room operator.
J. L. White, superintendent.
Blake E. Williams, plant engineer.

Allentown Portland Cement Co.
R. F. Weston, general superintendent.

Atlas Portland Cement Co.
W. E. Gehres, safety inspector.
Alex Morrow, quarry superintendent.

Canada Cement Co., Ltd., Montreal, Que.
W. J. Armstrong, chief clerk.
F. W. Coleman, machine-shop foreman.
Napoleon Porier, foreman.
Fred Whitehead, shop carpenter.

Cowell Portland Cement Co. (California)
T. S. Avila, machinist.
H. G. Brann, night mill foreman.

Edison Portland Cement Co.
George H. Adams, Jr.
P. R. Allshouse, clerk.
George Bruder.
Richard P. Cooke, repair foreman.
Harold Kuehler, coal plant foreman.
Wes. E. Lewis, repairman.
John D. Reamer.
J. Edward Ruck, foreman.
P. E. Sandt.
Frank Senteminia.
C. J. Shafter.
William P. Shipman, kiln-room foreman.
Benjamin Tedesa.
H. C. Willever.

Giant Portland Cement Co.
Julia Albeder, R.N., industrial nurse.
Al. Bates.
C. L. Best.
William Brandt, foreman.
Charles M. Clader.
A. H. Leh.
S. Lutz.
Mahlon J. Nothstein, assistant general foreman.
Jacob H. Smith, electrician.

Glens Falls Portland Cement Co.
Edw. H. Parry, personnel manager.

Hercules Cement Corp.
Charles P. Clauster.
J. Stanley Downs.
J. Victor Halberstadt.
J. Allen Schaeffer, chemist.
Arthur Stiffert, assistant chemist.

Lawrence Portland Cement Co.
M. S. Ackerman, Jr.
D. Adam, safety engineer.
Fred Andrews.
T. P. Blumer.
Frank D. Dawes.
C. Gardner.
Herbert W. Gillespie.
E. G. Huck.
Charles Kleckner.
Oscar Krege.
Mark H. Lichty, auditor.
Amos H. Peters.
R. D. Schaffer.
J. E. Shick.
H. D. Smith.
William J. Tunney.

Lehigh Portland Cement Co.
Frederick Agats.
William H. Arthur.
John Ball.

Richard Ball.
C. P. Benner, district safety inspector.
H. G. Bonney, machine-shop foreman.
Lloyd E. Diehl, general foreman.
C. S. Fahinger.
Benjamin Foose, construction foreman.
Howard Frey.
John Frickert.
George C. Fullagar, chief storekeeper.
C. I. Ganner, chief clerk.
Samuel F. Gehringer, laborer.
James Gish, Jr., superintendent.
Olin A. Griesemer, electrical engineer.
Willard H. Guth.
Fred A. J. Haas, storekeeper.
S. P. Helfirch.
H. H. Heller, Sr., superintendent Bath plant.
William Hunt.
George Kaufman, Jr., assistant chief engineer.
William H. Kleckner, superintendent.
Frank Krobatt.
Thomas S. Kuch.
Elmer W. Kuhns, pack and ship department.
Thomas C. Kuhns, chemist.
Robert J. Landendager, shipping.
Louis L. Laubeck.
Milton Laudenslager, foreman.
Martin Lehr, assistant superintendent.
Fred Loubach.
J. A. McFall, chemist.
K. E. Menear, chief electrician.
Walter Morgan.
George H. Moritz, district superintendent.
Ray Moritz.
R. D. Moritz, repair foreman.
William J. Moritz, superintendent.
Dennis O'Donnell.
Mr. O'Donnell.
Charles J. Phifer, chemist.
Benjamin F. Roth, general foreman.
Charles H. Schlicher, chief clerk.
Ida Jane Schock, R.N., industrial nurse.
Sherwood Shaffer, chief engineer.
Elmer Shoemaker.
Lucas Smith.
G. S. Snyder, superintendent.
C. A. Swiggett, superintendent.
Lewis Thomas.
E. F. L. Wagner, machinist.
Fred S. Wendling, timekeeper.
Ray Winters.

Lone Star Cement Co. of Pennsylvania
Th. Avensoe, general superintendent.
W. H. Cooley, storekeeper.
U. J. Edelman, repairman.
John Karolowitch, raw mill.
O. E. Kreamer, foreman.
Frank B. Leh, master mechanic.
Howard H. Leh, superintendent.
Milton S. Lindernofer, plumber.
R. N. Miers.
Edw. M. Morris, quarry foreman.
F. E. Scarfass, kiln foreman.
A. D. Schleicher, chief electrician.
E. P. Schmerr, assistant superintendent.

Nazareth Cement Co.
George Abscalon, kiln foreman.
Joseph Brobston, vice-president.
Jacob V. Dorreken.
E. E. Dreisbach.
Robert Frantz.
Albert Frey.
William Gaston.
George A. Hagenbach, laboratory foreman.
Clyde Hibbard.
James Hughes.
F. B. Hunt, electrical engineer.
J. W. Johnson.
W. F. Kern.
Charles F. Kratz, assistant master machinist.
Charles H. Lehr, machinist foreman.
Frank Marchs.
John A. Mohr.
R. S. Murphy.
H. A. Reichenbach.
Lawrence R. Rice.
G. Brinton Searless, waste-heat engineer.
W. H. Stoudt, mill foreman.
Jerry Stout, repairman.
V. L. Vannatta.
Ernest E. Wilken.

Pennsylvania-Dixie Cement Corp.
Kenneth P. Abel, safety engineer.
H. J. Antry, miller, raw mill.
V. C. Beers, foreman.
Edwin Berger, carpenter.
Stewart H. Dewson, chief engineer.
Mathias B. Eyer, chief engineer.
Frank Faustner, miller.
Howard C. Fehnel, pack-house.
Marshall Fehr, bag-house.
Oliver Force, electrician.
Morris Fortuin, general manager.
R. B. Fortuin, assistant to general manager.
W. Fry, foreman.
William P. Gano.
Maurice D. Goodhart, carpenter foreman.
George Graves, cement taper.
Victor A. Gruber, foreman.
Louis Haldeman, electric shovel operator.
L. Hawk.
Joe Herman, foreman.
Leon I. Heyer, machinist.
Frank Hofer, foreman.
William F. Houser, superintendent.
John Houszer, waste-heat.
Stephen Keppel, millwright.
William G. Kern, foreman.
Floyd Kimminair, mill foreman.
Francis R. Knecht, assistant to assistant general manager.
Charles Knecht.
J. Earl L. Kocher, electrical department.
Charles P. Kulclet.
Otto Kolb, foreman.
H. G. Kraemer, safety engineer.
Richard S. Laubach, chemist.
E. C. McOwogan, chief electrician.
Clyde Nabs, repair, waste-heat.
William H. Mann, mill foreman.
Charles Mike Maroski, quarry.
Vendel S. Moser, shovel man.
C. D. Newhard, superintendent.
Charles Paukovitch, repairman.
Howard J. Phillips, switchboard operator.
Wilson Rissmiller, electrical department.
J. Ritter, mill department.
Charles I. Roth, safety engineer.
Wilson Roth, general superintendent.
Samuel A. Ruth, electrical helper.
Earl Saeger, shop.
L. Sakasritz, mill foreman.
George Schlegel, machinist.
Joseph J. Schramek, bag-house.
Palmer J. Smith, blacksmith shop.
Russell Stewart, pack-house.
Ellwood H. Stiver, laboratory chemist.
Leidy Stoudt, repair.
Steve Tashen, truck driver.
Floyd J. Walters, superintendent.
Stefan Wolf, repair.
Frank Yandrisevitz, repair.

Universal Portland Cement Co.
J. R. Cline, assistant superintendent.

Vulcanite Portland Cement Co.
Jacob Boyd.
Floyd Brinker, painter.
I. R. Davis.
S. H. Harrison.
Vincent Kirchline, quarry foreman.
Leo Perrin.
James Pursel.
S. R. Pursel.
Raymond Renkert, machinist.
James Segreas, foreman.
William Stocker.
Jason Todd, foreman.

Miscellaneous
A. J. R. Curtis, assistant to general manager, Portland Cement Association.
Mr. Fegley, Bates Valve Bag Co.
G. B. Hadesty, Jr., Hercules Powder Co.
Prof. Hopkins, Lafayette College.
Joseph J. Nagle, chief inspector, Pennsylvania Manufacturers Association.
H. A. Schaffer, eastern sales manager, Bates Valve Bag Corp.
L. M. Smith, Pennsylvania Manufacturers Association.
John S. Spicer, Pennsylvania Department of Labor.
Robert W. Stark, Hercules Powder Co.
W. A. Turnbach, service supervisor, Hercules Powder Co.
W. U. Vincent, Portland Cement Association.
Sherwood F. Watts, Pennsylvania Manufacturers Association.
H. F. Yotter, General Crushed Stone Co.

Mill Safety Is Theme at Albany Meeting

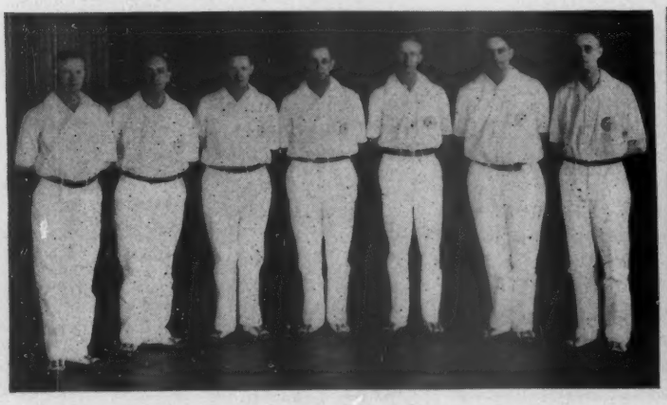
Regional Conference of the Portland Cement Assciation Larger Than Last Year

THE ANNUAL REGIONAL SAFETY MEETING for eastern New York cement mills was held at Hotel Ten Eyck, Albany, on June 12, under the auspices of the Portland Cement Association. In respect to attendance, interest and the value of the program, last year's initial effort at Albany was far surpassed. Not only was every cement mill in the region represented by a delegation, but representatives of the New York State Associated Industries, Albany Chamber of Commerce, New York Power and Light Corp. and other safety leaders in that vicinity were present to assist. Delegates were also present from the Montreal mill of the Canada Cement Co.

The general program was as follows:

10:00 a. m., morning session. Chairman, John J. Porter, vice-president, North American Cement Corp.

"Report on Safety Work in the Cement



First-aid team of the Hudson plant of the Knickerbocker Portland Cement Co.

North American Cement Corp. first-aid team from the Howes Cave plant

Industry in 1927." By A. J. R. Curtis, assistant to general manager, Portland Cement Association.

"Careless Characters." By F. E. Redmond, director educational bureau, Associated Industries of New York State.

"Good Lighting as an Aid to Plant Safety." By R. B. Morison, General Electric Co.

Th. Avnsoe

"How to Win a Trophy." By W. G. H. Cam, power and safety Engineer, Canada Cement Co.

12:15 p. m., luncheon. Th. Avnsoe, general superintendent, International Cement Corp., presiding.

Luncheon talk. By James Gheen, secretary, Albany Chamber of Commerce.

2:00 p. m., afternoon session. Resuscitation competition. Teams entered from Glens Falls Portland Cement Co., Knickerbocker Portland Cement Co., North American Cement Corp. (Howes Cave plant), Judge Peter Bozzone, New York Power and Light Corp.

"Every Employe on a Safety Committee." By J. J. Sullivan, employment manager, New York and New England Cement and Lime Co.

Round Table Discussion.

6:30 p. m., dinner. G. F. Bayle, Jr., vice-president, Glens Falls Portland Cement Co., toastmaster.

Speaker, G. S. Brown, president, Alpha Portland Cement Co. and president of the Portland Cement Association.

Those who took part in the round table discussion were as follows:

D. L. Ziegler, plant engineer, Alpha, Cementon.

Wm. Gorman, chemist, Alpha, Jamesville.

H. R. Andrews, chief electrician, Atlas, Hudson.

George Stauning, North American, Catskill.

H. H. Kessler, superintendent, North American, Catskill.

C. M. Reynolds, repair foreman, Knickerbocker, Hudson.

E. G. Godshalk, chief engineer, Knickerbocker, Hudson.

S. H. Griffith, general mill foreman, Knickerbocker, Hudson.

C. S. Andres, superintendent, Knickerbocker, Hudson.

F. D. Bower, safety engineer, Penn.-Dixie, No. 7, Portland Point.

Morris Fortuin, general manager, Penn.-Dixie, Nazareth, Penn.

E. H. Parry, safety director, Glens Falls, Glens Falls.

E. S. Hill, superintendent, North American, Howes Cave.

S. H. Rhodes, chief electrician, North American, Howes Cave.

W. G. H. Cam, power and safety engineer, Canada, Montreal, Que.

A. G. Beck, superintendent, Canada, Montreal, Que.

Val. Robertson, electrical engineer, Canada, Montreal, Que.

F. W. Kelley, president of the North American Cement Corp., also spoke briefly at the luncheon on the need of a protective tariff on cement. Mr. Kelley explained to the operating men of the industry how vital tariff protection is to the industry and how it affects each individual worker. Mr. Kelley said in substance that cement produced abroad under foreign labor conditions continues to come in duty-free, to the distress of manufacturers who subscribe to American standards, employ American labor, purchase vast quantities of American-made products and transportation, and pay taxes for the maintenance of our local institutions. It is high time that the false economy of foreign purchases be recognized and proper restraints provided, Mr. Kelley said.

Glen Falls Portland Cement Co. first-aid team

The first-aid competition was an interesting feature of the afternoon session. As all the teams entered were only recently organized, the competition may have lacked a little of the professional atmosphere developed by the seasoned teams, but whatever may have been lacking in that respect was made up adequately in enthusiasm. As judged by Peter Bozzone of the New York Power and Light Corp., the teams were awarded the following scores:

North American Cement Corp., Howes Cave, 92 points. Team composed of William Johnson, J. O. Reed, William Roscoe, Donald Shutt and Hubert Vaughn.

Glens Falls Portland Cement Co., 89 points. The Glens Falls team was composed of Theodore Lemery, Patrick O'Leary and Cyril Martell.

Knickerbocker Portland Cement Co., 86 points. The team was composed of L. R. Hennessy, captain; James Cole, Earl Johns, John O. Johnson, Harry Putman, Thomas J. Russell and Vincent Wallace. The Knickerbocker team was in uniform.

G. S. Brown, president of the Alpha Portland Cement Co., and president of the Portland Cement Association, made a fine address at the dinner in which he traced the marvelous progress of safety work in the cement industry and urged the mills represented to strive for and anticipate even greater results. Mr. Brown said:

"There has been no greater change in our industry than that which has taken place with respect to promoting the personal safety of our workmen. Success has come to us in this work by starting at the top and working down. The chief executive of a company must be enthusiastic about accident prevention to secure the fullest interest of the superintendents; the latter must be enthusiastic to insure the interest of the foremen and the foremen must ever spread enthusiasm in order to keep the workmen interested." After expressing great happiness at the interest manifested by the meeting and the evident splendid co-operation between company management and workmen, Mr. Brown

John J. Porter

concluded by stating significantly, "The executives of the cement industry have no responsibility which is greater and no purpose more definite and pronounced than to protect the safety of the employes of the industry."

The committee in charge of arrangements for the meeting was as follows:

J. J. Porter (North American), chairman.
C. A. Andres (Knickerbocker).
E. L. Boyne (Alpha, Jamesville).
Arch Brown (Alpha, Cementon).
R. A. Dittmar (Atlas, Hudson).
E. S. Hill (North American, Howes Cave).
H. H. Kessler (North American, Catskill).
E. H. Parry (Glens Falls).
C. F. Werner (Penn.-Dixie, Portland Point).

Registration

The complete enrollment was as follows:

Alpha Portland Cement Co., Cementon, N. Y.
William Acker, foreman.
Arch Brown, superintendent.
Tony Erceg, clay foreman.
A. Geneis, chief engineer.
W. Holar, foreman.
Stephen Machalk, storehouse foreman.
Earl C. Sandt, chemist.
Fred West, repair foreman.
James Young, foreman.
Antonio Zerrett, finish mill foreman.
Daniel L. Ziegler, plant engineer.

Alpha Portland Cement Co., Jamesville, N. Y.
E. L. Boyne, superintendent.
E. J. Bogan, paymaster.
Thomas Quinlan, electrician.
Arthur Jones, mill foreman.
William Gorman, chemist.

Alpha Portland Cement Co., Easton, Penn.
G. S. Brown, president.

Atlas Portland Cement Co., Hudson, N. Y.
J. D. Allardice, secretary to plant manager.
H. R. Andrews, chief electrician.
John G. Dreher, chief chemist.
James J. Paul, chief engineer.
James J. Sullivan, employment manager.
Charles Webster, railroad superintendent.

Canada Cement Co., Ltd., Montreal, Que.
A. G. Beck, superintendent, Plant No. 1.
Val Robertson, electrical and safety engineer.
W. G. H. Cam, power and safety engineer.

Glens Falls Portland Cement Co., Glens Falls, N. Y.
Francis L. Bayle, plant engineer.
Louis Blordin, foreman.
J. B. Buckley, chemist.
Edward Deness, repairman.
Joseph R. Donovan, safety department.
John J. Herlihy, shipping foreman.
T. C. Lemery, electrician.
C. M. Martell, electrician.
P. H. O'Leary.
Francis Palmer, quarry foreman.
E. H. Parry, safety director.
Alexander Prevost, foreman.

Knickerbocker Portland Cement Co., Hudson, N. Y.
C. S. Andres, superintendent.
A. F. Brown, timekeeper.
James Cole, repairman.
D. P. Cooper, vice-president.
Ellis G. Godshalk, chief engineer.
S. H. Griffith, night general mill foreman.
Gurton Grater, foreman construction.
L. R. Hennessy, chemist.
George R. Hughes, foreman bag house.
Earl Johns, electrician.
John O. Johnson, power department.
Paul Keyser, repairman.
William Lester, foreman machine shop.
Harry Putnam, electrician.
W. Remizon, head kiln burner.
Charles H. Reynolds, foreman repairs.
H. A. Ross, treasurer.
Thomas Russell, fireman.
Frank J. Smith, day mill foreman.
C. J. Speich, mechanical engineer.
M. A. Swayze, chief chemist.
Vincent Wallace, machinist.
G. E. Washburn, repair foreman.
Th. Avnsoe, general superintendent, New York City.

North American Cement Corp., Catskill, N. Y.
Raymond Burnett, pack-house foreman.
Thomas Clum, chemist.
William J. Farrell, store clerk.
R. V. Grobe, electrician.
Ebenazer Jauna, repairman.
H. H. Kessler, plant manager.
Harold Kruze, auto mechanic.
Arthur Miner, mill foreman.
G. A. Witte, assistant to general manager.
Harry Root, garage foreman.
William J. Shufer, foreman power department.
George Stauning, maintenance engineer.
Nick Veri, quarry foreman.

North American Cement Corp., Howes Cave, N. Y.
S. D. Currier, electrical engineer.
Paul Van Dyke, blacksmith.
E. S. Hill, superintendent.
W. F. Johnson, safety inspector.
J. O. Reed, engineer.
S. H. Rhodes, chief electrician.
William L. Roscoe, general foreman.
Donald Shutt, stock clerk.
Hubert S. Vaughn, electrical department.

North American Cement Corp., Albany, N. Y.
F. W. Kelley, president.
John J. Porter, vice-president.
C. R. Parks, treasurer.
Alexander M. Tyree, general purchasing agent.
Howard G. Wright, chief engineer.
Albert W. Cox, experimental engineer.

Pennsylvania-Dixie Portland Cement Corp., Portland Point, N. Y.
Frank D. Bower, safety engineer.
D. Fortuin, clerk.
James Hercuiger.
Granville Oplinger, assistant superintendent.
Sidney F. Rush.
Charles Scofield.
H. S. Schryler.
E. H. Schwartz, chemist.
James Stark.

Pennsylvania-Dixie Portland Cement Corp., Nazareth, Penn.
Morris Fortuin, general manager.
R. B. Fortuin, assistant to general manager.

Miscellaneous
A. J. R. Curtis, Portland Cement Association.
John A. Forrest, State Insurance Fund.
F. L. Pouliott, safety inspector, State Insurance Fund.
A. K. Vrandenburgh, safety inspector, State Insurance Fund.
R. G. Moreson, Edison Lamp Works.
C. A. Swanson, Edison Lamp Works.
Frank E. Redmond, director, Associated Industries.

Asbestos Cement Shingle Co. to Build Houston Plant

ETERNIT, INC., of Philadelphia is preparing to construct a $1,600,000 plant for the manufacture of asbestos cement shingles in Houston, Texas. The Houston plant will be similar to the St. Louis plant of the company, which was completed about 18 months ago. Asbestos fiber will be imported to Houston for the use of the plant. The company will operate its own cement grinding plant in connection with its manufacture of asbestos shingles and sheathing. B. T. Conwell of Philadelphia is president of Eternit, Inc., in America, the parent company operating seven plants in this country and Europe. —*Manufacturers' Record.*

Penn Slag Co. Completes New Sand Plant

OPERATING on full time, the new sand crusher, erected recently by the Penn Slag Co., West Broad street, Emaus, Penn., next to the Donaldson Iron Works, is both serving the customers of the plant and putting out a quantity of sand which will keep a large quantity of stock in the bins in case of emergency.

Three hundred tons of sand are prepared daily. This is screened and placed in separate bins according to the uses, which are for concrete, plastering and brick laying.

Before the installation of this unit the Penn Slag Co. did this same work, but on a decidedly smaller scale than it is now capable of, as with the new unit it is possible to supply any quantity at any time.

With the quarry on the South Mountain, Emaus, the material is brought to the plant, prepared and is then shipped by rail or truck. The new plant, which is built directly on the Reading company tracks, formerly the old blast furnace, affords most speedy and convenient service. It is almost directly on Broad street and easily accessible.

In June, 1925, William Davies, who is general manager, began operation of the Penn Slag Co., which was formerly owned by the National Slag Co. He has built up the business to the point where it is serving a reliable patronage in Allentown and the Lehigh and Perkiomen valleys.

Work at the Penn Slag Co. is superintended by Howard Knauss.—*Allentown* (Penn.) *News.*

Right of Sand Company to Put Refuse Sand in River

SAND companies operating in the river near Topeka, Kan., put waste fine sand back into the river. This has been the custom for many years. According to the *Topeka Capital,* the fine sand has formed bars that have changed the current so that dikes built by the drainage board and work of the sewer and water departments is said to be threatened. The sand companies operate under license from the state and their right to put waste sand into the river have never been questioned before. The whole matter has been brought before a meeting of interested parties.

Kansas Favors Gravel Highway

THE Kansas Highway Commission has adopted a definite policy of using sand and gravel on all the roads it can improve that way for the present.

"Gravel and sand cost only $1,500 to $2,000 a mile," said John Gardner, highway director. "By using these materials, which are plentiful in many sections, we can build roads passable at all seasons without difficulty or long delay. They are easy and inexpensive to maintain. By using the calcium chloride, the gravel and sand are held together and the dust is obviated. Of course, these roads will have to be rebuilt in five or six years, but we feel that it is better to build that way and get as many people out of the mud as possible rather than build short stretches of more permanent and more expensive roads, just at this time."

Lime Producers Conference at Kingston, R. I.

THE second annual conference of Lime Producers and Their Agents was held June 22, 1928, at Rhode Island State College, Kingston, R. I. Burton K. Harris, Saylesville, R. I., acted as presiding officer.

Following the address of welcome by G. E. Adams, there were several papers delivered embracing the simple tests for lime requirements, use of lime in agriculture, value of advertising and relation of freight to costs.

Portland Cement Production in May

Shipments Show Considerable Increase Over May, 1927—Making Up for a Slow Start

THE PORTLAND CEMENT INDUSTRY in May, 1928, produced 17,280,000 bbl., shipped 18,986,000 bbl. from the mills and had in stock at the end of the month 25,921,000 bbl., according to the United States Bureau of Mines, Department of Commerce. The production of portland cement in May, 1928, showed an increase of 3.5% and shipments an increase of 12.6%, as compared with May, 1927. Portland cement stocks at the mills were 10.3% higher than a year ago. The total production from January to May, 1928, inclusive, amounts to 59,536,000 bbl., compared with 57,834,000 bbl. in the same period of 1927, and the total shipments from January to May, 1928, inclusive, amount to 55,532,000 bbl., as compared with 55,014,000 bbl. in the same period of 1927.

The statistics here presented are compiled from reports for May from all manufacturing plants except two, for which estimates have been included in lieu of actual returns. They include the output of another new plant, located in Washington, which began operating during the month.

In the following statement of relation of production to capacity, the total output of finished cement is compared with the estimated capacity of 157 plants at the close of May, 1928, and of 146 plants at the close of May, 1927.

Distribution of Cement

The following figures show shipments from portland cement mills distributed among the states to which cement was shipped during March and April, 1927 and 1928:

RELATION OF PRODUCTION TO CAPACITY

	—May—		Apr.	Mar.	Feb.
	1928	1927	1928	1928	1928
	Pct.	Pct.	Pct.	Pct.	Pct.
The month	86.6	88.9	70.0	51.7	47.5
12 mo. ended	73.9	75.5	74.0	74.6	75.1

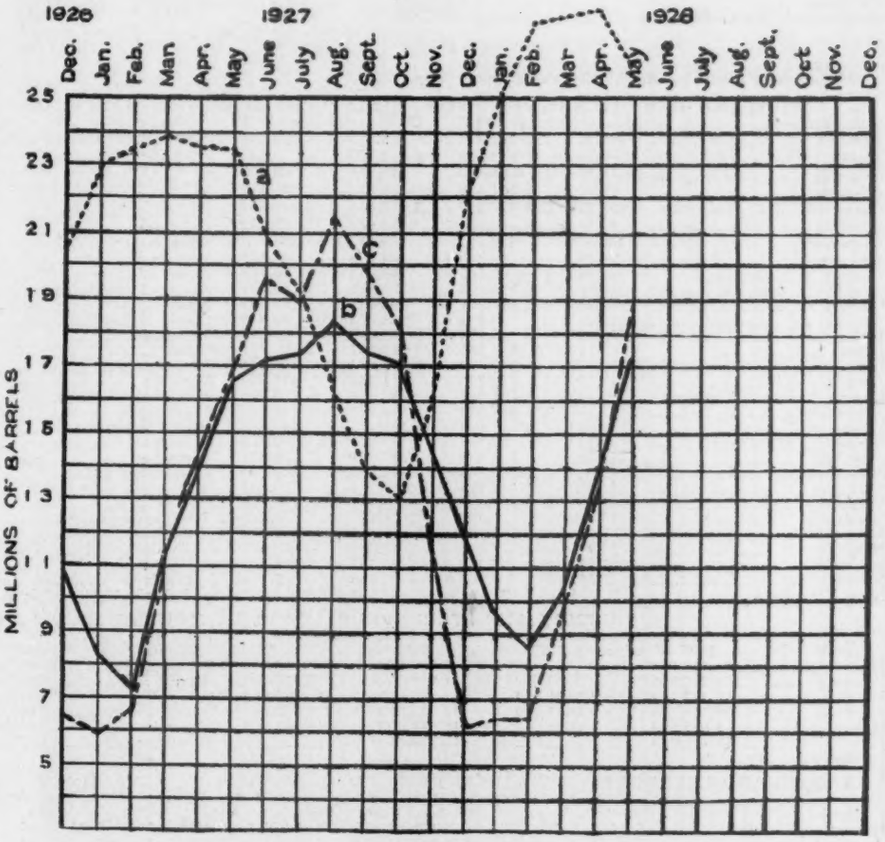
EXPORTS OF HYDRAULIC CEMENT BY COUNTRIES IN APRIL, 1928

Exported to—	Barrels	Value
Canada	2,470	$ 13,566
Central America	2,794	7,516
Cuba	6,281	17,935
Other West Indies and Bermuda	6,267	14,419
Mexico	6,085	20,507
South America	30,570	94,945
Other countries	7,209	36,994
	61,676	$205,882

DOMESTIC HYDRAULIC CEMENT SHIPPED TO ALASKA, HAWAII, AND PORTO RICO, IN APRIL, 1928

	Barrels	Value
Alaska	1,217	$ 3,646
Hawaii	35,744	92,054
Porto Rico	2,555	7,043
	39,516	$102,743

(Prepared under supervision of Frank J. Katz, Chief, Division of Mineral Statistics.)



(a) Stocks of finished portland cement at factories; (b) Production of finished portland cement; (c) Shipments of finished portland cement from factories

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY DISTRICTS, IN MAY, 1927 AND 1928, AND STOCKS IN APRIL 1928 (IN BARRELS)

Districts	Production 1927—May—1928		Shipments 1927—May—1928		Stocks at end of month 1927	1928	Stocks at end of April, 1928*
E. Penn., N. J. and Md.	4,040,000	3,814,000	4,139,000	4,200,000	5,048,000	6,102,000	6,488,000
New York and Maine†	1,033,000	1,291,000	961,000	1,239,000	1,695,000	1,899,000	1,847,000
Ohio, W'n Penn. and W. Va.	1,558,000	1,803,000	1,538,000	1,898,000	3,400,000	3,482,000	3,577,000
Michigan	1,558,000	1,280,000	1,431,000	1,507,000	2,195,000	2,240,000	2,467,000
Wis., Ill., Ind. and Ky.	2,189,000	2,374,000	2,336,000	2,793,000	3,131,000	3,011,000	3,429,000
Va., Tenn., Ala., Ga., Fla. and La.	1,456,000	1,337,000	1,453,000	1,500,000	1,146,000	1,876,000	2,040,000
E. Mo., Ia., Minn. and S. D.	1,440,000	1,766,000	1,383,000	2,043,000	3,289,000	3,524,000	3,901,000
W. Mo., Neb., Kan. and Okla.	1,037,000	1,188,000	1,070,000	1,181,000	1,725,000	1,573,000	1,566,000
Texas	462,000	531,000	573,000	610,000	314,000	389,000	468,000
Colo., Mont. and Utah	246,000	311,000	229,000	267,000	515,000	510,000	465,000
California	1,364,000	1,175,000	1,423,000	1,235,000	573,000	869,000	929,000
Oregon and Washington	318,000	410,000	329,000	413,000	472,000	446,000	450,000
	16,701,000	17,280,000	16,865,000	18,986,000	23,503,000	25,921,000	27,627,000

PRODUCTION, SHIPMENTS AND STOCKS OF FINISHED PORTLAND CEMENT, BY MONTHS IN 1927 AND 1928 (IN BARRELS)

Month	Production 1927	1928	Shipments 1927	1928	Stocks at end of month 1927	1928
January	8,258,000	9,768,000	5,968,000	6,541,000	22,914,000	25,116,000
February	7,377,000	8,797,000	6,731,000	6,563,000	23,563,000	27,349,000
March	11,450,000	10,223,000	11,100,000	10,135,000	23,922,000	27,445,000
April	14,048,000	13,468,000	14,350,000	13,307,000	23,654,000	*27,627,000
May	16,701,000	17,280,000	16,865,000	18,986,000	23,503,000	25,921,000
June	17,224,000	.....	19,761,000	.....	20,972,000	.....
July	17,408,000	.....	18,984,000	.....	19,397,000	.....
August	18,315,000	.....	21,411,000	.....	16,292,000	.....
September	17,505,000	.....	19,828,000	.....	13,996,000	.....
October	17,174,000	.....	18,105,000	.....	13,141,000	.....
November	14,449,000	.....	11,619,000	.....	16,022,000	.....
December	11,999,000	.....	6,200,000	.....	*22,082,000	.....
	171,908,000	.....	170,922,000	.....	.....	.....

PRODUCTION AND STOCKS OF CLINKER (UNGROUND CEMENT), BY DISTRICTS, IN MAY, 1927 AND 1928 (IN BARRELS)

District	1927—Production—1928		Stocks at end of month 1927	1928
Eastern Penn., N. J. and Maryland	3,686,000	3,650,000	1,745,000	1,926,000
New York and Maine†	1,014,000	1,192,000	570,000	1,042,000
Ohio, Western Pennsylvania and West Virginia	1,523,000	1,686,000	1,611,000	1,903,000
Michigan	1,364,000	1,270,000	1,668,000	1,879,000
Wisconsin, Illinois, Indiana and Kentucky	2,027,000	1,857,000	1,793,000	2,012,000
Virginia, Tenn., Ala., Ga., Fla. and La.	1,439,000	1,247,000	903,000	957,000
Eastern Mo., Iowa, Minnesota and South Dakota	1,287,000	1,596,000	809,000	1,011,000
Western Missouri, Nebraska, Kansas and Okla.	1,003,000	1,098,000	643,000	580,000
Texas	488,000	546,000	169,000	179,000
Colorado, Montana and Utah	161,000	285,000	760,000	421,000
California	1,319,000	1,243,000	1,190,000	1,420,000
Oregon and Washington	366,000	355,000	653,000	634,000
	15,677,000	16,025,000	12,514,000	13,964,000

*Revised.
†Maine began producing April, 1928, and shipping May, 1928.

PORTLAND CEMENT SHIPPED FROM MILLS INTO STATES IN MARCH AND APRIL, 1927 AND 1928, IN BARRELS*

Shipped to—	1927—March—1928		1927—April—1928	
Alabama	141,921	282,379	173,893	233,865
Alaska	305	264	1,037	542
Arizona	45,602	81,586	47,573	64,808
Arkansas	59,114	101,428	53,331	86,513
California	1,094,778	937,253	1,137,845	1,058,739
Colorado	47,912	60,381	86,431	90,312
Connecticut	109,035	113,752	179,863	187,697
Delaware	24,826	19,230	40,699	26,177
District of Columbia	95,396	62,160	89,048	66,108
Florida	290,682	114,798	271,575	134,647
Georgia	169,167	157,171	168,681	155,787
Hawaii	19,615	39,411	25,876	19,314
Idaho	35,047	23,994	32,063	30,832
Illinois	752,148	700,881	956,912	1,192,251
Indiana	273,970	232,338	418,874	355,434
Iowa	147,119	149,705	211,248	405,654
Kansas	166,110	194,957	203,368	202,705
Kentucky	112,435	103,113	148,567	130,168
Louisiana	134,893	115,669	107,023	112,667
Maine	20,132	18,704	39,031	30,015
Maryland	231,780	123,334	224,405	176,807
Massachusetts	193,283	160,730	293,606	256,150
Michigan	527,829	433,110	857,574	710,731
Minnesota	147,967	128,332	258,506	185,901
Mississippi	75,149	73,937	78,127	73,651
Missouri	287,825	333,221	312,311	383,704
Montana	19,365	27,231	23,882	32,676
Nebraska	81,860	88,491	96,255	108,224
Nevada	7,665	7,568	10,406	7,195
New Hampshire	25,391	25,575	43,932	34,667
New Jersey	611,542	505,016	897,645	778,746
New Mexico	32,564	30,606	28,566	27,664
New York	1,511,091	1,237,218	2,131,528	1,758,888
North Carolina	235,316	209,006	324,758	199,340
North Dakota	20,429	18,274	38,157	34,627
Ohio	585,797	540,347	837,050	776,992
Oklahoma	235,301	294,206	242,747	209,850
Oregon	91,820	78,121	122,281	102,480
Pennsylvania	865,043	657,006	1,199,544	928,060
Porto Rico	2,500	1,329	1,000	0
Rhode Island	50,746	47,707	78,743	81,029
South Carolina	71,247	119,612	82,680	101,838
South Dakota	31,724	25,694	35,465	42,599
Tennessee	137,431	174,774	180,574	216,928
Texas	481,261	546,960	472,879	526,063
Utah	25,741	35,955	31,793	36,932
Vermont	9,397	14,737	30,185	27,791
Virginia	124,387	173,697	135,226	175,192
Washington	229,012	162,335	248,518	237,749
West Virginia	97,094	81,273	112,009	103,682
Wisconsin	221,345	148,969	356,961	287,693
Wyoming	10,293	13,571	14,783	15,229
Unspecified	14,749	57,761	102,398	41,738
	11,034,151	10,084,877	14,296,532	13,265,051
Foreign ccuntries	65,849	50,123	53,468	41,949
Total shipped from cement plants	11,100,000	10,135,000	14,350,000	13,307,000

*Includes estimated distribution of shipments from three plants in March and April, 1928, and in April, 1927; and from five plants in March, 1927.

PRODUCTION AND STOCKS OF CLINKER, BY MONTHS, IN 1927 AND 1928 (IN BARRELS)

Month	1927—Production—1928		Stock end of month 1927	1928
January	10,410,000	11,839,000	9,989,000	9,672,000
February	9,253,000	11,363,000	11,943,000	12,237,000
March	12,397,000	12,501,000	12,997,000	14,463,000
April	14,246,000	13,844,000	13,335,000	*15,002,000
May	15,677,000	16,025,000	12,514,000	13,964,000
June	15,437,000	.....	10,926,000	.....
July	15,697,000	.....	9,609,000	.....
August	16,396,000	.....	7,887,000	.....
September	15,931,000	.....	6,490,000	.....
October	16,469,000	.....	5,960,000	.....
November	14,698,000	.....	6,374,000	.....
December	13,177,000	.....	7,660,000	.....

*Revised.

EXPORTS AND IMPORTS OF HYDRAULIC CEMENT, BY MONTHS, IN 1927 AND 1928

Month	1927—Exports—1928				1927—Imports—1928			
	Barrels	Value	Barrels	Value	Barrels	Value	Barrels	Value
January	75,346	$ 254,072	56,400	$204,875	193,175	$ 269,661	234,753	$342,797
February	71,404	233,985	62,828	221,620	130,421	200,680	164,408	217,525
March	67,596	240,165	74,983	265,719	181,145	261,519	235,930	330,074
April	72,383	243,832	61,676	205,882	192,318	313,262	249,458	324,371
May	59,332	205,574	.....	.....	178,929	263,618	.....	.....
June	69,205	237,281	.....	.....	129,111	201,682	.....	.....
July	72,337	249,737	.....	.....	175,042	249,665	.....	.....
August	61,371	209,198	.....	.....	117,605	170,167	.....	.....
September	57,890	207,817	.....	.....	233,066	304,796	.....	.....
October	67,639	230,668	.....	.....	221,274	321,777	.....	.....
November	79,764	257,428	.....	.....	141,485	190,419	.....	.....
December	62,099	226,960	.....	.....	156,609	209,205	.....	.....
	816,726	$2,796,717	.....	.....	2,050,180	$2,956,451	.....	.....

IMPORTS OF HYDRAULIC CEMENT BY COUNTRIES, AND BY DISTRICTS, IN APRIL, 1928

Imported from	District into which imported	Barrels	Value
Belgium	Florida	993	$ 1,019
	Galveston	8,001	9,609
	Hawaii	4,153	5,234
	Maine and New Hampshire	15,000	20,313
	Massachusetts	93,004	122,538
	New York	10,968	13,792
	North Carolina	12,400	15,497
	Oregon	14,000	17,400
	South Carolina	36,940	46,417
	Washington	10,962	15,484
	Total	206,421	$267,303
Canada	Maine and New Hampshire	1,166	$ 2,405
	Vermont	349	484
	Total	1,515	$ 2,889
Denmark	Porto Rico	36,044	$ 44,860
France	New York	1,491	$ 3,297
United K'd'm	New York	1,511	$ 2,732
	Philadelphia	2,476	3,290
	Total	3,987	$ 6,022
	Grand total	249,458	$324,371

A summary of the final statistics of portland cement production and consumption for 1927 has just been completed by the Bureau of Mines (an abstract of these appears on the succeeding pages of this issue of ROCK PRODUCTS).

British Cement Manufacturers Looking for Ways to Reduce Costs

AT THE 17TH ORDINARY general meeting of the British Portland Cement Manufacturers, Ltd., the chairman, in his speech, included the following remarks respecting the works of the company:

"Improvements in the process of manufacture and plant employed are always being invented. We have embarked on a considerable program of reconstruction and extension at various works. Martin, Earle and Co.'s works have already been brought up to date. Two modern kilns are in operation, six old ones and the steam power plant having been scrapped. Electric power purchased under contract has been installed and the most modern excavating and wash mill plant installed in the quarry. These improvements have resulted in a completed unit up to date, and have effected considerable reductions in manufacturing costs. A second rotary kiln has been erected at our Sundom works in Bedfordshire, displacing a small kiln and shaft kilns. At the Wouldham works, where we manufacture the well-known Maltese Cross brand, a large rotary kiln is being installed and our washing plant reorganized, the additional electric power required being purchased from the County of London Electric Supply Co., Ltd., whose cables pass the works. The work being undertaken here is considerable, but we hope it will be completed by the end of the year.

"Our Johnson works are being reconstructed and extended. Benefiting from the experience gained by the Association Portland Cement Manufacturers, Ltd., at Bevans we are turning to good account the natural facilities which this factory site affords, with its deep water jetty and the ample cheap raw materials available. Two long kilns are being erected, and the productive capacity will be brought up to 7000 tons weekly. New washing and grinding plants and concrete silos are being erected. Arrangements have been made with the Associated Portland Cement Manufacturers, Ltd., to extend their Kent power plant to enable them to supply the whole of the electric power required at the Johnson works. This concentration of power plants in one unit will decrease the cost of producing electrical power to the advantage of both companies."—*The Quarry and Surveyors' and Contractors' Journal*

Sand-Lime Brick Production and Shipments in May

THE following data are compiled from reports received direct from 27 producers of sand-lime brick located in various parts of the United States and Canada. The number of plants reporting is three less than those furnishing statistics for the April estimate published in the May 12 issue. The statistics below may be regarded as representative of the entire industry, the reporting plants having about one-half the production capacity in the United States and Canada.

Production has shown a marked increase during the past month, as is to be expected at this time of the year, although three of the plants reported no production at all. Shipments also show considerable raise, both by truck and by rail. Stocks are diminished considerably, due to the increased shipping, while the amount of unfilled orders is about the same as for April.

The following are average prices quoted for sand-lime brick in May:

Average Prices for May

Shipping Point	Plant Price	Delivered
Boston, Bass.	.....	$16.00
Buffalo, N. Y.	$12.50	16.75
Columbus, Ohio	14.00	15.50
Dayton, Ohio	12.50	15.00
Detroit, Mich. (2 plants)	.....	16.00
Detroit, Mich.	.....	15.75
Detroit, Mich.	13.00	15.50
Detroit, Mich.	14.00	16.00
Grand Rapids, Mich.	.....	.....
Hartford, Conn.	14.00	19.00
Jackson, Mich.	12.25	.....
Madison, Wis.	12.50	14.00
Menominee, Mich.	11.00	14.50
Michigan City, Ind.	11.00	.....
Milwaukee, Wis.	10.50	13.00
Minneapolis, Minn.	10.00	12.75
New Orleans, La.	.....	.....
Pontiac, Mich.	12.00	14.00
Rochester, N. Y.	.....	19.75
Saginaw, Mich.	12.00	.....
Sebewaing, Mich.	.....	.....
Sioux Falls, S. D.	12.00	14.00
Syracuse, N. Y.	18.00	20.00
Toronto, Canada	12.50	15.00
Winchester, Mass.	.....	16.00
Winnipeg, Canada	.....	15.00

The following statistics are compiled from data received direct from 27 producers of sand-lime brick in the United States and Canada:

Statistics for April and May, 1928

	*April	†May
Production	10,011,900	22,244,400
Shipments (rail)	4,828,700	7,751,700
Shipments (truck)	9,182,280	18,228,900
Stocks	15,120,600	12,159,000
Unfilled orders	14,123,000	14,445,000

*Revised to include one plant not furnishing April data previously, 24 plants reporting.
†Incomplete, one plant not reporting stocks and eight plants not reporting unfilled orders.

Notes From Producers

The Columbus Builders Supply Co., Columbus, Ohio, completed some repairs to its plant during the month of May.

The Wisconsin Brick Co., Madison, Wis., resumed operations at its plant on May 21 after being closed down since February for improvements and repairs.

Sand-Lime Brick Concern Moves to Mishawaka, Ind.

ANNOUNCEMENT has recently been made by Wm. T. C. Dall, manager of the North Indiana Brick Co., that the company has sold its property in Michigan City, Ind., to the Indiana Industrial Land Co., a subsidiary of the Insull utility interests. The North Indiana Brick Co. ceased operations in Michigan City in May after continuous operation of its sand-lime brick factory there for 18 years, and the company has been moving its machinery to its new plant in Mishawaka, Ind., which is to be opened immediately. The plant is located at Fir and East Jefferson Roads in Mishawaka, and the main offices of the company will also be located in that city. J. Morley Zander, of Saginaw, Mich., is president of the company; E. R. Newland, of South Bend, Ind., is vice-president; and Chester Perkins, also of South Bend, is treasurer. Mr. Dall, who has been manager of the plant at Michigan City for 16 years, will continue as manager and secretary at Mishawaka. — *Michigan City* (Ind.) *News.*

Labor-saving method of handling sand-lime brick from a barge

U. S. Gypsum Buys Laramie, Wyo., Mill

THE United States Gypsum Co., Chicago, has recently purchased the Overland Cement Plaster Co.'s mill at Laramie, Wyo. Extensive repairs will be made at the plant before it will be placed in operation. When this mill is put in production it will be the 26th in the chain of producing units.

Cement Plants Engineers Move to New Offices

ANNOUNCEMENT is made by F. L. Smidth and Co., engineers and designers of cement plants and machinery, of the removal of their offices on June 9 from the Hudson Terminal building, 50 Church street, where they have been located for years, to the Transportation building, 225 Broadway, New York City, where they will occupy the entire 24th story.

Sand-Lime Brick Association Convention Proceedings

A BOOKLET containing the proceedings of the 24th Annual Convention of the Sand-Lime Brick Association held in Washington, February 1-3, incl., has recently been received.

The president's address, minutes and reports as well as the contents of several pamphlets from the Department of Commerce, including the U. S. Government Master Specifications for common sand-lime brick, are reproduced.

The paper delivered by Stanton Walker of the National Sand and Gravel Association on "Importance of Proper Requirements for Sand," is also reprinted and illustrated in the bulletin.

Unloading Sand-Lime Brick from a Barge

THE illustration shows how a Haiss portable conveyor can be used for unloading brick from a barge directly to the waiting truck. While barge shipping of sand-lime brick has not been as well developed as it will probably be in the future, there is enough being carried on to make this feature interesting as a demonstration of a time saving method. It is likely also that such methods could be used advantageously in loading at the plant. The wheels of the conveyor are on swivels permitting them to be turned to allow movement along the dock or track, so that shifting the conveyor from place to place on the barge is made easy.

Pacific Coast Lime Companies Merge

ACCORDING to a recent report, the Pacific Lime and Plaster Co. and the United States Lime Products Co. have merged under the name of the latter. Offices of both companies were in San Francisco, where the offices of the combined company will be located. The new concern now has plants at Sloan, Nev., and Sonora, Calif., and maintains warehouses at San Francisco, Los Angeles and Portland, Ore. Charles M. Cadman, formerly president of the Pacific Lime and Plaster Co., is president of the new combination.

It is expected the new concern will continue to operate both plants and also keep the three warehouses open in the future.

Traffic and Transportation

Car Loadings of Sand and Gravel, Stone and Limestone Flux

THE following are the weekly car loadings of sand and gravel, crushed stone and limestone flux (by railroad districts) as reported by the Car Service Division, American Railway Association, Washington, D. C.:

CAR LOADINGS OF SAND, GRAVEL, STONE AND LIMESTONE FLUX

	Limestone flux Week ended		Sand, stone and gravel Week ended	
District	May 19	May 26	May 19	May 26
Eastern	3,294	3,340	14,307	14,927
Allegheny	3,642	3,820	10,285	9,923
Pocahontas	626	593	1,027	999
Southern	835	542	11,443	10,980
Northwestern	1,630	1,829	8,975	9,587
Central Western	394	448	12,717	13,369
Southwestern	501	475	6,130	7,142
Total	10,922	11,047	64,884	66,927

COMPARATIVE TOTAL LOADINGS, BY DISTRICTS, 1927 AND 1928

	Limestone Flux		Sand, Gravel and Stone	
	1927	1928	1927	1928
	Period to Date		Period to Date	
District	May 28	May 26	May 28	May 26
Eastern	58,727	49,478	118,043	113,487
Allegheny	71,136	63,328	110,835	95,820
Pocahontas	7,792	6,982	13,144	14,545
Southern	10,880	11,596	227,307	202,014
Northwestern	25,705	19,519	94,006	80,211
Central Western	10,010	8,438	152,623	159,630
Southwestern	6,209	8,500	98,939	107,738
Total	190,459	167,841	814,897	773,445

COMPARATIVE TOTAL LOADINGS, 1927 AND 1928

	1927	1928
Limestone flux	*190,459*	*167,841*
Sand, stone, gravel	*814,897*	*773,445*

Proposed Changes in Rates

THE following are the latest proposed changes in freight rates up to the week beginning June 16:

CENTRAL FREIGHT ASSOCIATION DOCKET

18635. To establish on **crushed stone**, carloads, Peebles, Ohio, to Hillsboro, Ohio, rate of 70c per net ton. Present rate, 80c per net ton.

18636. To establish on **sand** (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding or polishing, loam, molding or silica) and **gravel**, carloads, Vincennes, Ind., to Worthington, Ind., via Penna. R. R., rate of 76c per net ton. Present rate, 260c per net ton (sixth class).

18637. To establish on **sand** (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding or polishing, loam, molding or silica) and **gravel**, carloads, Hibbard, Ind., to South Bend, Ind., via P. R. R., rate of 60c per net ton. Present rate, 84c per net ton.

18613. To establish on **bank, river and/or torpedo sand and/or gravel**, carloads, Terre Haute, Ind., also Cayuga, Lewis Pit, Norton Creek, Summit Grove and Wayne Pit, Ind., to following stations on the C. & E. I. Ry.:

St. James, Ill.	Mt. Vernon, Ill.
Loogootee, Ill.	Bakerville, Ill.
St. Peter, Ill.	Bonnie, Ill.
Kinmundy, Ill.	Ina, Ill.
Brubaker, Ill.	Whittington, Ill.
Salem, Ill.	Benton, Ill.
Carter, Ill.	West Frankfort, Ill.
Kell, Ill.	Johnson City, Ill.
Texico, Ill.	Marion, Ill.

Following rates—From Terre Haute, Ind., 111c per net ton. Present rate, 112c per net ton. From Cayuga, Lewis Pit, etc., 101c per net ton. Present rate, 112c per net ton.

18655. To establish on **crushed stone**, carloads, Maple Grove, Ohio, to Antwerp, Ohio, and Woodburn, Ind., rate of 115c per net ton. Route—Penna. R. R., Toledo, Ohio, Wabash Ry. Present rate, 300c and 330c per net ton.

18659. To establish on **crushed stone**, carloads, Greenfield, Ohio, to New Holland and Johnsons, Ohio, rate of 80c per net ton. Present rate, 90c per net ton.

Note 1—Minimum weight marked capacity of car.

Note 2—Minimum weight 90% of marked capacity of car.

Note 3—Minimum weight 90% of marked capacity of car, except that when car is loaded to visible capacity the actual weight will apply.

18663. To establish on **crushed stone and crushed stone screenings**, carloads, Findlay, Ohio, to North Randall, Ohio, rate of 100c per net ton. Route—Via N. Y. C. & St. L. R. R., Cleveland, Ohio, and Erie R. R. Present rate, sixth class.

18664. To establish on **crushed stone**, carloads, from Lima, Ohio, to North Randall, Ohio, rate of 100c per net ton. The Erie R. R. will only absorb $2.70 of connecting lines' switching charge at Lima, Ohio. Present rate, 370c per net ton.

18666. To revise rates on **sand** (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding or polishing, loam, molding and silica), **gravel, crushed stone and stone screenings**, including **crushed limestone and limestone screenings**, carloads, also on commercial **crushed slag** in bulk, in open top equipment, carloads, from origin points contiguous to and competitive with those mentioned in complaints in I. C. C. Docket 15329 and P. S. C. of Pa. Docket C5855, C6951 and C7079, as shown in Exhibit "B" attached, to territory in the state of Ohio and east of an imaginary line drawn from Toledo through North Baltimore, Arlington, Kenton, Delaware, Alton, Lancaster, Shawnee and Glouster to Belpre; C. F. A. territory in state of New York to state of West Virginia, west of Cumberland, Md., and north of Gassaway, Morrison and Washington, W. Va., to a basis of the following distance scale in cents per net ton as a maximum:

	For single line hauls
20 miles and under	60
40 miles and over 20	70
60 miles and over 40	80
80 miles and over 60	90
100 miles and over 80	100
125 miles and over 100	110
150 miles and over 125	120
175 miles and over 150	130
200 miles and over 175	140

For joint hauls 20c is to be added to the single line scale rate, with the following exceptions as announced by individual lines, who advise that they will apply to distance via direct connections, the single line scale rate from points on B. & L. E. R. R. to points on Erie R. R., N. Y. C. R. R., P. & L. E. R. R. From points on Erie R. R. to points on B. & L. E. R. R., P. & L. E. R. R. From points on N. Y. C. R. R. to points on B. & L. E. R. R., P. & L. E. R. R. From points on P. & L. E. R. R. to points on B. & L. E. R. R., Erie R. R., Monongahela Ry., N. Y. C. R. R. From points on single line, B. & O. R. R., P. R. R. From stations on the B. & O. and Pennsylvania railroads to stations on the Monongahela Ry. the single line scale will be applied, except when prevented by fourth section consideration.

18668. To publish in N. Y. C. tariff naming commodity rates on **sand and gravel**, from points in Michigan, following provisions: "When shipments of sand or gravel from points in Michigan named herein are not weighed upon track scales, the estimated weight will be 2700 lb. per cubic yard on sand and 3000 lb. per cubic yard on gravel." Present N. Y. C. Tariff I. C. C. L. S. 1413 names minimum weight as in Note 2.

18677. To establish on **crushed stone** and **crushed stone screenings**, carloads, Lima and Bluffton, Ohio, to N. Y. C. & St. L. R. R. stations in Indiana, following rates, in cents per net ton:

To (Indiana destinations)	From Bluffton, O. Rate	Prop.	From Lima, O. Rate	Prop.
Hartford City	*	115	*	105
Eaton	*	115	*	105
Snideers	*	115	*	105
Royerton	*	115	*	105
Whitely	*	105	*	100
Muncie	113	105	113	100
Industry	*	105	*	100
Cowan	*	115	*	105
Oakville	*	115	*	105
Springport	*	115	*	105
Mt. Summit	*	115	*	105
New Castle	*	115	*	105
New Lisbon	*	125	*	115
Cambridge City	*	125	*	115
Milton	*	125	*	115
Beesons	*	125	*	115
Connersville	*	125	*	125
Spiceland	*	125	*	115
Dunreith	*	125	*	115
Mays	*	125	*	115
Sexton	*	125	*	115
Rushville	*	125	*	125

*Sixth class.

Route via N. Y. C. & St. L. R. R. direct.

18679. To publish rates 70c per ton of 2000 lb. on **sand** (all kinds) and **gravel**, carloads, in open cars, Massillon, Ohio, to *Alexanders, Ohio, Brecksville, Ohio. Present rate, 80c per ton of 2000 lb. *Will not apply to Ohio Coal Supply Co. switch. Route via B. & O. R. R., Warwick and Akron, Ohio.

18680. To establish on **crushed stone**, carloads, East Liberty, Ohio, to point in Ohio, rates as shown below:

To	Pres.	Prop.	Route
Shawnee, Ohio	.....	115	*
McCuneville, Ohio	.....	105	†
Blanchester, Ohio	.....	115	‡
Wilmington, Ohio	.....	105	‡
New Vienna, Ohio	.....	115	‡

*N. Y. C. †N. Y. C., Junction City, B. & O. ‡N. Y. C., Columbus, B. & O.

18682. To amend Item 2275 of C. F. A. T. B. Tariff 130R to provide for minimum weight of 90% of marked capacity of car, except when car is loaded to full cubical or visible capacity actual weight will apply on traffic originating at points on the Illinois Central R. R. Present minimum weight, marked capacity of car. This item names 90% of sixth class rating on **stone and granite** as described therein between Peoria, Ill., and Ohio River crossings, Indianapolis, Ind., and points taking same rates.

18706. To establish on **sand** (except blast, core, engine, filter, fire or furnace, glass, grinding or polishing, loam, molding or silica) **and gravel**, carloads, Gravel Bank and Marietta, Ohio, to Parkersburg, W. Va., rate of 60c per net ton. Present rates, from Gravel Bank, 70c per net ton, and from Marietta, Ohio, 80c per net ton.

18707. To establish on **sand** (lake, river and bank, other than sand, loam), carloads, from Indiana to Illinois, rates as shown below. Present and proposed rates (in cents per net ton) from Gary, Calumet and Willow Creek, Ind.:

To	Present Rate	Proposed
Elgin, Ill.	Classification basis	125
Elmhurst, Ill.	Classification basis	93
Westchester, Ill.	Classification basis	93
Wheaton, Ill.	Classification basis	93

Route—Wabash, Chicago, Ill., C. A. & E. R. R.

SOUTHERN FREIGHT ASSOCIATION DOCKET

40316. **Ground or pulverized limestone or marble**, from Cartersville, Ga., to Mineral Springs, Ala. Birmingham, Ala., combination of 194c per net ton now applies. Proposed rate on ground or pulverized limestone or marble, carloads, minimum weight marked capacity of car, except when car is loaded to full visible capacity, actual weight will apply

(not subject to Rule 34 of Southern Classification) —from Cartersville, Ga., to Mineral Springs, Ala., 176c per net ton, made on the general basis for rates on this commodity from Cartersville, Ga., to southern points.

40374. **Agricultural limestone,** from Frankfort, Viley, Mullins, Yellow Rock and Lexington, Ky., to L. & N. R. R. stations in Kentucky, Tennessee and Virginia. It is proposed to establish commodity rates on—Stone, agricultural (ground limestone), carloads, minimum weight 60,000 lb. Note —When loaded in box cars, same to be lined with strong paper to prevent loss. From the origins mentioned above to L. & N. R. R. stations in the states of Kentucky, Tennessee and Virginia, made on basis of the scale that has been employed in establishing rates on this commodity between points on the L. & N. R. R., and generally used in determining rates on the same commodity between points in southern territory generally. Statement of the present and proposed rates to the destinations here involved will be furnished upon request.

40378. **Agricultural limestone,** from Franklin, Tenn., to L. & N. R. R. stations. It is proposed to revise rates on agricultural limestone, carloads, from Franklin, Tenn., to points on the L. & N. R. R., Clarksville Mineral Branch, Van Leer Spur, O. & N. Division, Nuckols, Ky., to Adairsville, Ky., inc., Henderson Division, Springfield, Tenn., through Adams, Tenn., and Chad, Ky., through Elmwood, Ky., also to Manitou and Nebo, Ky., on the Morganfield Branch, on basis of the scale that has been used extensively by the L. & N. R. R. in revising rates on this commodity.

40399. **Ground limestone,** from Cartersville, Ga., and Sparta, Tenn., to Butler, Jeannette and Sharpsburg, Penn. Cincinnati, Ohio, combination now applies. Proposed rates—On calcite, ground or pulverized (ground or pulverized limestone or marble), carloads, weight marked capacity of car, except when car is loaded to full visible capacity actual weight will apply (not subject to Rule 34 of Southern Classification), to Butler, Jeannette and Sharpsburg, Penn.: From Cartersville, Ga., 527c; from Sparta, Tenn., 520c per net ton, same as rates in effect to Pittsburgh, Penn.

40461. **Limestone, ground, etc.,** from Calera, Ala., to L. & N. R. R. stations. Class rates now apply, and it is proposed to establish commodity rates on limestone, ground, powdered or pulverized, carloads, minimum weight 60,000 lb. (when loaded in box cars, same to be lined with strong paper to prevent loss). from Calera, Ala., to points on the L. & N. R. R. to which commodity rates are published from Dolcito, Ala., made on the same basis as reflected in the present rates from Dolcito, Ala. Statement of the proposed rates will be furnished upon request.

40518. **Marble, crushed, ground or pulverized,** from Tate, Ga., to Ohio River crossings and points beyond; commodity description. It is proposed to eliminate the words "in bags" now carried in the descriptions covering rates on crushed, ground or pulverized marble from Tate, Ga., to destinations named in Agent Speiden's Tariff 172A, I. C. C. 1194, and Agent Glenn's Tariff 10A, I. C. C. A554, thus allowing the rates to apply on shipments in bags, barrels or in bulk.

WESTERN TRUNK LINE DOCKET

6519. Rates: **Crushed stone,** carloads, from Mississippi river crossings and Chicago, Ill. (proportional), to Missouri river cities. Present rates are as published in Items 4250 and 4280A of W. T. L. Tariff 1Q, and are restricted in their application so as to apply only as proportional rates on traffic originating at points east of the Ill.-Ind. state line. (See circle reference (3) of Item 4250 and circle reference (2) of Item 4280A.) Proposed —To amend said rate items so that they will also apply on traffic originating in Carolina and southeastern territories.

6216B. **Limestone, agricultural** (for soil treatment), in boxes, barrels or bulk, carloads, minimum weight 60,000 lb., from Dubuque, Iowa, to C. M. & St. P. stations in Minnesota. Present and proposed rates to a few representative points are as follows:

To	Pres.	Prop.	To	Pres.	Prop.
Reno	180	100	Adams	220	130
Preston	220	130	Rushford	220	120
Caledonia	200	110	Albert Lea	240	140
Spring Valley	240	140			

TRUNK LINE ASSOCIATION DOCKET

18993. To revise the rates on **crushed stone** and **stone screenings,** carloads (See Note 2), from Casparis, Connellsville, Bluestone Co. and Dunbar, Penn., to points on the Monongahela R. R., West Van Vorhis, W. Va., to Riversville Jct., W. Va., inclusive, rates ranging from 80c to $1.20 per ton of 2000 lb. Reason—Proposed rates are comparable with rates on like commodities for like distances, services and conditions.

Sup. 3 to 18422. **Agricultural, land, chemical, gas or glass lime,** carloads, minimum weight 30,000 lb. also **ground limestone,** carloads, minimum weight 50,000 lb., from Annville, Bridgeport, Brownstone, Cedar Hollow, Cold Point, Conaghmore, Howellville, Hummelstown, Lancaster, Leesport, Lebanon, Mill Lane, Myerstown, Palmyra, Paxtang, Plymouth Meeting, Shainline, Swatara, Swedeland, Williams, Penn. Rates in cents per 100 lb.

To—	
Johnstown, N. Y.	22
Gloversville, N. Y.	22½
Broadalbin, N. Y.	23
Mayfield, N. Y.	23
Cranberry Creek, N. Y.	23½
Northville, N. Y.	24

18911. **Sand,** other than blast, engine, foundry, molding, glass, silica, quartz or silex, also **gravel,** carloads (See Note 2), from Lewes, Del., to Bear, Del., $1.25 per ton of 2000 lb. Reason—Proposed rates compare favorably with rates from Lewes, Del., to Worton, Md., and from Wilmington, Del., to Laurel, Dagsboro and Hurlock, Del.

18913. **Limestone, unburnt ground,** carloads, minimum weight 50,000 lb., from Barber, Va., to Taneytown, Md., $3.10 per ton of 2000 lb. Reason —Proposed rate is comparable with rates now in force from Barber, Va., to Baltimore, Md.

19006. **Crushed stone,** carloads (See Note 2), from White Haven, Penn., to Marcy, Penn., to Lynn, Penn., inclusive, $1.05 per ton of 2000 lb. Reason—Proposed rates are comparable with rates on like commodities between points in the same general territory.

18914. **Stone, rip rap, rubble and spawls,** carloads (See Note 2), from Johnstown, Penn., to Garvers Ferry, Natrona, Pittsburgh and Clairton, Penn., 7c, and to Carnegie and Sewickley, Penn., 7½c per 100 lb. Reason—Proposed rates compare favorably with existing rates on like commodities from and to points in the same general territory.

18917. **Crushed stone,** carloads (See Note 2), from LeRoy, N. Y., to Lewis Run, Penn., $1.20 per ton of 2000 lb. Reason—Proposed rate is comparable with rate from LeRoy, N. Y., to Binghamton, N. Y.

18919. **Crushed stone,** carloads (See Note 2), from Morrisville and Tullytown, Penn., to Point Pleasant, N. J., 90c per ton of 2000 lb. Reason—Proposed rates are comparable with rates now in force on like commodities to Deal Beach, Toms River, Manasquan and Avon, N. J.

18920. To establish rates on **flint, ground,** carloads, minimum weight as per O. C., from Trenton, N. J., to C. F. A. territory, on the same basis as now applicable on glass sand, as per rates from New York basis under Group 29 of Agent Curlett's I. C. C. A193. Reason—Proposed rates are comparable with rates from the Mapleton district.

18927. (A) **Sand,** other than blast, engine, foundry, molding, glass, silica, quartz or silex, carloads, (B) **sand, blast, engine, foundry, molding, glass, silica, quartz or silex,** carloads (See Note 2), from York, Penn., to Lancaster, Penn., (A) 90c, and (B) 99c per ton of 2000 lb. Reason—Proposed rates are comparable with rates now in force from York, Penn., to Harrisburg, Columbia, Penn., etc.

18930. To restore rate of 3½c per 100 lb. on **agricultural, land, chemical, gas, glass lime,** carloads, between Pleasant Gap, Penn., and Bellefonte, Penn.

18940. **Agricultural, land, chemical, gas or glass lime, carloads,** minimum weight 30,000 lb., also **ground limestone,** carloads, minimum weight 50,000 lb, from Knickerbocker, Howellville, Rambo, Plymouth Meeting, Blue Bell, Devault, Penn., to Princeton Junction, N. J., 8c per 100 lb. Reason —Proposed rates are comparable with rates now in force from Devault, Penn., to Lawrence, Palmyra, Moorestown, N. J., etc.

18957. To revise the rates on **sand, gravel and crushed stone,** from western Pennsylvania points to C. F. A. and Trunk Line territories. Also to cancel commodity rates on ballast, carloads, account rates are higher than the proposed rates on crushed stone. Statement of revised rates will be furnished upon request.

M941. **Sand and gravel,** carloads (See Note 2), from Farmingdale and South Lakewood, N. J., to Freneau and Cliffwood, N. J., 60c per ton of 2000 lb. Reason—Proposed rates are comparable with rates now in force to Matawan, Branchport and West End, N. J.

M943. **Crushed stone,** carloads (See Note 2), from Nazareth, Penn., to East Stroudsburg or Stroudsburg, Penn., 80c per ton of 2000 lb. Reason—Proposed rate compares favorably with rate from Bethlehem, Penn.

M946. **Sand, common,** for road building purposes, carloads (See Note 2), from Machias, N. Y., to Portville, N. Y., 75c per ton of 2000 lb. Reason—To meet motor truck competition.

M947. **Sand,** other than blast, engine, foundry, molding or silica **and gravel,** carloads (See Note 2), from Attica, N. Y., to stations Taylor, N. Y., to Halite, N. Y., incl., 80c per ton of 2000 lb. Reason—Proposed rate is fairly comparable with rates on like commodities from and to points in the same general territory.

M950. **Common sand,** carloads (See Note 2), from Buffalo, N. Y., to various Trunk Line points, Albany, Carthage, Frankfort, Fulton, Kingston, Little Falls, Malone, Massena, Mt. Vernon, New York, Newburgh, Ogdensburg, Oswego, Poughkeepsie, N. Y., Williamsport, Penn., Jersey City, N. J., and various, rates ranging from $1.10 to $2.80 per ton of 2000 lb.

18960. **Sand** (other than blast, engine, foundry, glass, molding or silica) **and gravel,** carloads (See Note 2), from Avoca, Penn., to Scranton, Dunmore, Pittston, Olyphant, Peckville, Moosic, Penn., 70c per ton of 2000 lb. Reason—Proposed rates are comparable with rates now in force from White Mills, Penn., to same points.

18972. **Crushed stone,** carloads (See Note 2), from Spahr, Md., to B. & O. R. R. points, Philadelphia, Penn., Wilmington, Del., Relay, Savage, Md., Georgetown, D. C., Avalon, Eakle's Mills, Hagerstown, Md., Harpers Ferry, Romney, Petersburg, Rinard, Belington, Richmond, Dundon, Owensport, W. Va., and various, rates ranging from 85c to $2.65 per ton of 2000 lb. Reason—Proposed rates are based on 15c per net ton over rates now in effect in Frederick, Md.

18530, Sup. 1. Amend rate proposal No. 18530 covering rates on **lime** and **limestone,** carloads, from Ashcom, Penn., to New England territory by changing minimum weight as follows: Now reading: (A) **Lime,** carloads, minimum weight 30,000 lb. Change to read: (A) **Lime,** carloads, minimum weight 40,000 lb. Minimum weight now reading: (B) **Ground limestone** to remain as shown.

18846. To change the description of **building lime** and **agricultural lime,** in connection with rates from Pancoast, Penn., to B. R. & P. Ry. stations, Beechtree, Clearfield, Ernest, Indiana, Punxsutawney, Bonnie Brook, Butler Transfer, Penn., and various, as follows: Now reading, (A) **Building lime,** carloads, (B) **agricultural** lime (having no commercial value for building or chemical purposes), carloads, minimum weight 30,000 lb.; to read (A) **building lime,** carloads, (B) **agricultural lime,** carloads, minimum weight 30,000 lb.

18576, Sup. 1. To change description on building and **agricultural lime,** as shown in Rate Proposal No. 18576 in connection with rates from Pancoast, Penn., to P. R. R. stations, Ridgway, Kane, Warren, Union City, Erie, Penn., etc., to read as follows: (A) **Building lime,** carloads; (B) **agricultural lime,** carloads, minimum weight 30,000 lb. This will have the effect of eliminating clause "having no value for building or chemical purposes."

ILLINOIS FREIGHT ASSOCIATION DOCKET

4508. **Silica, rock,** carloads, from Tamms, Ill., to East St. Louis, Ill., present, none; proposed, $1.14 per ton of 2000 lb.

3464. **Stone, crushed** or **broken, agricultural limestone, etc.,** from Valmeyer, Ill.

	Present. In cents per 100 lb.	Proposed. In cents per net ton.	
To	Col. A	Col. B	Col. C
Memphis, Tenn.	36	135	132
Helena, Ark.	41	175	137
Natchez, Miss.	53	205	202
New Orleans, La.	56	205	205

Column A—Stone N. O. I. B. N., crushed, dust, ground or powdered, carloads, minimum weight 40,000 lb.

Column B—Stone, crushed or broken, stone screenings or stone refuse (not ground or pulverized stone), (See Note 3), per ton of 2000 lb.

Column C—Agricultural limestone (ground or pulverized), in bags, barrels or in bulk (See Note 2), per ton of 2000 lb.

SOUTHWESTERN FREIGHT BUREAU DOCKET

15059. **Gravel, crushed stone,** etc., from points in Oklahoma to points in Missouri. To apply the mileage scale of rates now published in Item 6998A of S. W. L. Tariff 44-O for application on gravel, crushed stone and sand, carloads, minimum weight marked capacity of car, except when loaded to full visible capacity of car actual weight but not less than 50,000 lb. will apply, between stations in Oklahoma on the A. T. & S. F. Ry., C. R. I. & P. Ry., K. C. M. & O. Ry., K. O. & G. Ry., M. V. R. R., M.-K.-T. R. R., Mo. Pac. R. R., St.L.-S.F. Ry. and Sand Springs Ry., and stations in Missouri located in the Joplin-Webb City district, and all stations in Kansas. It is contended that points in the so-called Joplin-Webb City district should be placed on a parity with points west of the line of the K. C. S. Ry., as they are in active competition with one another.

NEW ENGLAND FREIGHT ASSOCIATION DOCKET

14706. **Sand and gravel,** from East Weare, N. H., to Newfane, Vt., $1.50 per net ton, via Brattleboro, Vt., and C. V. Ry. Reason—To accord shippers a rate to Newfane, Vt., comparable with those now in effect to other Central Vermont Ry. points.

14730. **Sand, blasting, core, fine** and **sea,** carloads (See Note 2), from Harlem River, N. Y., to Stamford, Conn., 6½c; to Springfield, Westfield and Pittsfield, Mass., 10c; to Boston, Mass., 12c; to Worcester, Mass., 13c.

Reason—To provide same basis of rates from Harlem River as is now in effect from Bridgeport, Conn., etc.

14746. **Sand, core, fire** and **sea,** carloads (See Note 2), from Carolina, R. I., to N. Y. N. H. & H. R. R. stations, rates based on 55% of sixth class, and same as now in effect from Davisville, R. I., Onset, Provincetown, Mass., and other N. Y. N. H. & H. R. R. points. Reason—To provide rates from a new pit that is being opened at Carolina, R. I.

Analysis of Output of Portland Cement in 1927

Final Figures Contain Some Interesting Facts

STATISTICS relating to the portland cement industry in 1927 compiled by the Bureau of Mines, Department of Commerce, from the final returns of the producers for the year, confirm the estimates published by the Bureau of Mines early in January (published in ROCK PRODUCTS, February 4, 1928).

Production of portland cement in 1927—173,206,513 bbl.—was the largest quantity manufactured thus far in any year, exceeding that in 1926, the next highest year in production, by 5%.

Shipments of portland cement from mills in 1927 amounted to 171,864,728 bbl., valued at $278,854,647, an increase of 6% in quantity and of 0.3% in gross value. The average factory price per barrel in bulk in 1927 was $1.62, a decrease of 9c. per bbl. as compared with 1926.

Stocks at the mills also increased, reaching a total of 22,081,972 bbl. on December 31, 1927, the greatest at the end of any year during which official records of stocks have been kept. They were about 6% higher than at the end of 1926.

Per Capita Consumption

From the reports of the producers showing mill shipments of portland cement into the various states estimates of per capital consumption in the accompanying table have been compiled. These are at best but approximations, as they represent only the records of mill shipments into states; they do not include the imports, which would increase the consumption in certain states near the Canadian border and the seaboard, nor do they make allowance for a variable but considerable stock of cement at all times in transit, in warehouses, etc.

The commercial capacity for production of finished portland cement of the 153 plants active at the end of 1927, and of two plants idle in 1927 but producing within the two previous years, according to manufacturers' reports supplemented by a few estimates, was 227,080,000 bbl. This total includes besides increased capacity due to extensions and improvements at old plants approximately 13,863,000 bbl. capacity for finished portland cement of 14 new plants that began operating during the year and are located as follows: One each in Alabama, California, Colorado, Florida, Iowa, Louisiana, Tennessee and Texas, and two each in New York, Pennsylvania and West Virginia. The total production for the year 1927 was 76.3% of the indicated capacity at the close of the year. The corresponding figure for 1925 from the producers' reports was 83.5%. The figure for 1926 based on estimates of capacity made by the Bureau of Mines for the year was 76.4%.

PORTLAND CEMENT PRODUCED, SHIPPED, AND IN STOCK IN THE UNITED STATES, 1926 AND 1927, BY STATES

State	Active plants 1926	Active plants 1927	Production Barrels 1926	Production Barrels 1927	Increase or decrease 1927 (per cent)	Shipments 1926 Barrels	Shipments 1926 Value	Shipments 1927 Barrels	Shipments 1927 Value	Average factory value per barrel 1926	Average factory value per barrel 1927	Increase or decrease in quantity 1927 (per cent)	Stock (Dec. 31) Barrels 1926 (revised)	Stock (Dec. 31) Barrels 1927	Increase or decrease 1927 (per cent)
Alabama	5	6	6,709,829	7,564,863	+13	6,693,900	$ 10,825,421	7,313,494	$ 10,615,428	$1.62	$1.45	+ 9	403,426	654,795	+62
California	11	12	13,842,483	14,580,654	+ 5	13,660,078	25,299,245	14,433,153	26,623,396	1.85	1.84	+ 6	662,006	809,507	+22
Illinois	4	4	6,747,241	7,017,047	+ 4	6,977,598	11,388,800	7,061,240	11,312,783	1.63	1.60	+ 1	812,468	768,275	— 5
Iowa	4	5	4,925,811	5,415,144	+10	4,788,639	8,167,341	5,661,234	9,124,405	1.71	1.61	+18	1,616,842	1,370,752	—15
Kansas	7	7	6,357,581	6,180,255	— 3	6,150,694	9,757,699	6,141,937	9,939,412	1.59	1.62	— .1	1,099,505	1,137,823	+ 3
Michigan	16	15	12,037,400	13,965,241	+16	11,959,447	19,499,788	13,708,259	20,858,202	1.63	1.52	+15	1,948,302	2,205,284	+13
Missouri	5	5	7,653,111	6,778,384	—11	7,639,966	12,917,342	6,929,229	11,117,047	1.69	1.60	— 9	1,097,897	947,052	—14
New York	9	11	8,795,768	10,775,375	+23	8,535,862	14,864,066	10,531,092	16,380,090	1.74	1.56	+23	1,284,527	1,528,810	+19
Ohio	10	10	7,556,493	8,853,869	+17	7,422,720	12,831,503	8,727,879	14,242,901	1.73	1.63	+18	1,079,385	1,205,375	+12
Pennsylvania	23	25	42,865,694	43,732,278	+ 2	41,395,604	70,437,218	42,909,513	66,711,069	1.70	1.55	+ 4	4,714,827	5,537,592	+17
Tennessee	4	5	5,222,114	4,430,439	—15	5,053,528	8,352,095	4,343,337	6,580,732	1.65	1.52	—14	429,828	516,930	+20
Texas	6	7	5,007,374	5,655,835	+13	5,042,359	9,522,701	5,692,350	10,232,908	1.89	1.80	+13	443,918	407,403	— 8
Other states*	36	41	36,809,271	38,257,129	+ 4	36,866,695	64,102,254	38,412,011	65,116,274	1.74	1.70	+ 4	5,147,256	4,992,374	— 3
	140	153	164,530,170	173,206,513	+ 5	162,187,090	$277,965,473	171,864,728	$278,854,647	$1.71	$1.62	+ 6	20,740,187	22,081,972	+ 6

*Includes Colorado, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Minnesota, Montana, Nebraska, New Jersey, Oklahoma, Oregon, South Dakota, Utah, Virginia, Washington, West Virginia, and Wisconsin.

SHIPMENTS OF DOMESTIC PORTLAND CEMENT FROM MILLS INTO STATES AND PER CAPITA, 1926 AND 1927, IN BARRELS*

State	1926 Total	1926 Per capita*	1927 Total	1927 Per capita*
Alabama	1,981,011	0.78	2,264,576	0.89
Arizona†	426,261	0.96	562,460	1.23
Arkansas†	769,808	0.40	855,051	0.44
California	12,691,277	2.94	13,128,911	2.96
Colorado	1,138,301	1.07	1,002,396	0.93
Connecticut†	1,856,786	1.16	2,061,892	1.26
Delaware†	360,193	1.50	342,905	1.41
District of Columbia†	907,342	1.72	981,732	1.82
Florida‡	4,373,917	3.32	2,482,725	1.82
Georgia	1,831,276	0.58	1,904,685	0.60
Idaho†	443,737	0.85	311,226	0.58
Illinois	14,066,500	1.95	14,832,550	2.03
Indiana	5,174,533	1.66	5,738,557	1.82
Iowa	2,826,839	1.17	3,708,471	1.53
Kansas	2,286,661	1.26	2,432,055	1.33
Kentucky	1,659,087	0.66	1,953,629	0.77
Louisiana‡	1,187,453	0.62	1,490,560	0.77
Maine†	548,155	0.69	505,952	0.64
Maryland	2,318,564	1.47	2,651,700	1.66
Massachusetts†	2,982,987	0.71	2,820,132	0.66
Michigan	10,784,049	2.45	11,576,188	2.58
Minnesota	3,572,711	1.35	3,380,002	1.26
Mississippi†	804,351	0.45	980,791	0.55
Missouri	5,201,961	1.49	4,207,151	1.20
Montana	257,741	0.37	307,968	0.43
Nebraska	1,554,967	1.12	1,360,032	0.97
Nevada†	94,644	1.22	87,276	1.13
New Hampshire†	438,350	0.97	459,706	1.01
New Jersey	7,116,109	1.93	8,419,323	2.25
New Mexico†	192,718	0.50	278,528	0.71
New York	20,224,702	1.79	23,002,585	2.01
North Carolina†	3,731,959	1.31	3,213,314	1.11
North Dakota†	402,546	0.63	392,730	0.61
Ohio	9,683,538	1.47	10,342,424	1.54
Oklahoma	2,343,201	1.00	3,119,565	1.31
Oregon	1,318,252	1.50	1,399,167	1.57
Pennsylvania	13,839,552	1.44	13,837,359	1.42
Rhode Island†	634,626	0.92	700,851	1.00
South Carolina†	638,972	0.35	985,874	0.53
South Dakota	423,831	0.62	409,820	0.59
Tennessee	1,933,409	0.78	2,262,697	0.91
Texas	4,877,987	0.92	5,437,907	1.01
Utah	461,338	0.90	428,469	0.82
Vermont†	271,615	0.77	393,294	1.12
Virginia	1,733,734	0.69	1,799,062	0.71
Washington	2,021,986	1.31	2,574,293	1.65
West Virginia	1,679,574	1.01	1,561,978	0.92
Wisconsin	4,621,975	1.60	5,553,176	1.90
Wyoming†	188,590	0.80	181,103	0.75
Unspecified	60,031	.....	51,818	.....
	160,939,707	1.37	170,736,616	1.44
Exports reported by manufacturers but not included above§	1,247,383	.....	1,128,112	.....
Total shipped from cement plants	162,187,090	.....	171,864,728	.....

*Per capita figures based on estimate of population made by the Bureau of the Census. †Noncement-producing state. ‡Florida began producing September, shipping October, 1927; Louisiana began producing June, shipping July, 1927. §Includes shipments to Alaska, Hawaii, and Porto Rico.

PORTLAND CEMENT PRODUCED, SHIPPED, AND IN STOCK IN THE UNITED STATES, 1926 AND 1927, BY DISTRICTS

District	Active plants 1926	Active plants 1927	Production Barrels 1926	Production Barrels 1927	Increase or decrease 1927 (per cent)	Shipments 1926 Barrels	Shipments 1926 Value	Shipments 1927 Barrels	Shipments 1927 Value	Average factory value per barrel 1926	Average factory value per barrel 1927	Increase or decrease in quantity 1927 (per cent)	Stock (Dec. 31) Barrels 1926 (revised)	Stock (Dec. 31) Barrels 1927	Increase or decrease 1927 (per cent)
E'n Penn., N. J., and Maryland	23	24	42,139,204	42,687,200	+ 1	40,635,514	$ 69,581,973	41,656,489	$ 64,614,336	$1.71	$1.55	+ 3	4,076,535	5,107,246	+25
New York	9	11	8,795,768	10,775,375	+23	8,535,862	14,864,066	10,531,092	16,380,090	1.74	1.56	+23	1,284,527	1,528,810	+19
Ohio, W'n Penn., and West Virginia	15	18	15,913,500	17,339,199	+ 9	15,758,822	26,336,705	17,202,341	27,638,726	1.67	1.61	+ 9	2,469,740	2,606,598	+ 6
Michigan	16	15	12,037,400	13,965,241	+16	11,959,447	19,499,788	13,708,259	20,858,202	1.63	1.52	+15	1,948,302	2,205,284	+13
Wis., Ill., Ind., and Ky.	11	11	21,350,107	22,022,150	+ 3	21,876,629	36,267,413	22,394,739	36,274,654	1.66	1.62	+ 2	2,986,830	2,614,241	—12
Va., Tenn., Ala., Ga., Fla.,* and La.†	14	18	15,307,606	16,016,154	+ 5	14,963,262	24,860,207	15,530,338	23,668,315	1.66	1.52	+ 4	1,196,280	1,682,096	+41
E'n Mo., Ia., Minn., and S. Dak.	10	11	14,138,619	14,358,201	+ 2	14,026,247	23,754,460	14,566,818	23,325,158	1.69	1.60	+ 4	2,940,185	2,731,568	— 7
W'n Mo., Nebr., Kans., and Okla.	11	11	10,277,391	10,092,888	— 2	10,158,484	16,068,802	10,250,532	16,809,793	1.58	1.64	+ 1	1,777,409	1,619,765	— 9
Texas	6	7	5,007,374	5,655,835	+13	5,042,359	9,522,701	5,692,350	10,232,908	1.89	1.80	+13	443,918	407,403	— 8
Colo., Mont., and Utah	7	8	2,523,509	2,179,241	—14	2,457,303	5,167,446	2,293,514	4,692,136	2.10	2.05	— 7	483,820	369,547	—24
California	11	12	13,842,483	14,580,654	+ 5	13,660,078	25,299,245	14,433,153	26,623,396	1.85	1.84	+ 6	662,006	809,507	+22
Oreg. and Wash.	7	7	3,197,209	3,534,375	+11	3,113,083	6,742,667	3,605,103	7,736,933	2.17	2.15	+16	470,635	399,907	—15
	140	153	164,530,170	173,206,513	+ 5	162,187,090	$277,965,473	171,864,728	$278,854,647	$1.71	$1.62	+ 6	20,740,187	22,081,972	+ 6

*Began producing in September, shipping in October, 1927. †Louisiana began producing in June, shipping in July, 1927.

PORTLAND CEMENT MANUFACTURING CAPACITY OF THE UNITED STATES, BY COMMERCIAL DISTRICTS, 1927*

District	Estimated capacity (barrels)	Percentage of capacity utilized
E'n Penn., N. J. and Md.	47,074,000	90.7
New York	15,760,000	68.4
Ohio, W'n Penn., and W. Va.	23,260,000	74.5
Michigan	18,591,000	75.1
Wis., Ill., Ind., and Ky.	26,161,000	84.2
Va., Tenn., Ala., Ga., Fla., and Louisiana	21,846,000	73.3
E'n Mo., Ia., Minn., and S. D.	20,357,000	70.5
W'n Mo., Neb., Kan., and Okla.	14,013,000	72.0
Texas	7,230,000	78.2
Colorado, Montana, and Utah	5,592,000	39.0
California	21,813,000	66.8
Oregon and Washington	5,383,000	65.7
	227,080,000	76.3

*Subject to revision.

I. C. C. Asked to Investigate Southern Gravel Rates

THE Interstate Commerce Commission has been asked to institute a general investigation into the rate in Southern territory on chert, clay, sand and gravel, by a motion filed by the State Highway Commission of Georgia, the city of Atlanta, and the Atlanta Freight Bureau.

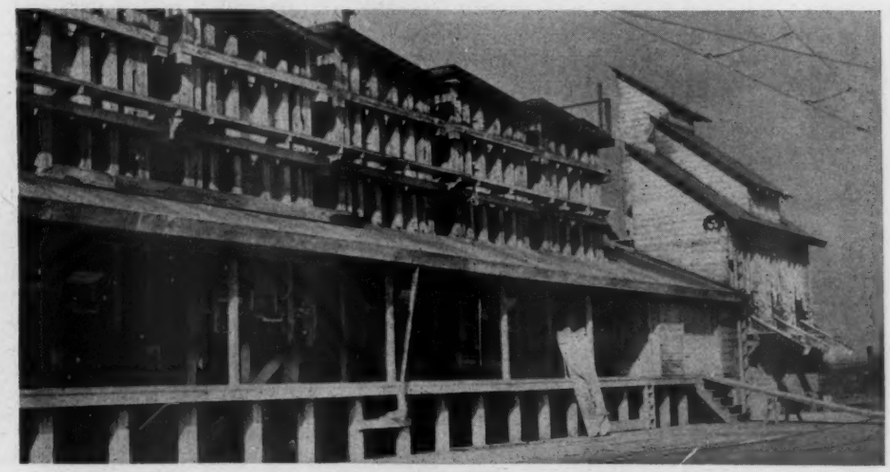
The motion was filed in Docket No. 17517, relating to the rates on these commodities within the state of Georgia, and was made public by the Commission on May 18. The respondents represent that rates in Mississippi are generally lower than the rates in Georgia and that the rates between Tennessee and Mississippi and from Alabama to Tennessee and Mississippi are lower than the interstate rates prescribed in this proceeding and lower than the rates in Georgia.—*United States Daily.*

West Coast Lime Manufacturer Does Big Putty Business

By EDMUND E. PUGSLEY

IT IS JUST a little over a year since General Manager R. F. Mather of the Pacific Lime Co., Vancouver, B. C., decided that the time was ripe to furnish the building trades with the ready-mixed lime mortar and putty; and already two of the company's trucks are operating to capacity with others available for hire on short notice when heavy contracts require a rush of material. Situated on the Harbor Board's Industrial Island, in the heart of the city, this plant is ideally located for present and future needs. Sand is unloaded from scows at the plant wharf, and here also the company's own boats dock with lime from the plant at Blubber Bay, Texada Island, B. C.

The plant's seven putty vats are capable of storing 700 cu. yds., which, allowing for a 50% shrinkage in its 30-day curing process, makes a supply of 350 cu. yd. of fully matured product always on hand. Two vats



Ready-mixed mortar and putty plant of the Pacific Lime Co. at Vancouver, B. C.

cope with the present demand for mortar and sufficient property is under lease to permit of any necessary enlargements.

Railway trackage also serves the plant and paved roads facilitate trucking, so that but a few minutes are required from the time the truck leaves the bunkers until it is pouring the plasterer's or brick-layer's material into his bin.

Southern Phosphate Company Building New Plant

THE SOUTHERN PHOSPHATE CO., Tampa, Fla., has contracted with a lumber company to deliver at once more than 250,000 ft. of lumber for the construction of a new phosphate plant at Sangully, near Tampa. The new industry, it is said, will have a payroll of $15,000 monthly.

Asphalt Paving Conference for New Orleans

AT a recent meeting in Chicago, of the board of directors for the Asphalt Association, New Orleans was chosen as the city in which the Seventh Annual Asphalt Paving Conference will be held during the week of Dec. 10, 1928. The conference is a nationwide convention of asphalt chemists, engineers, producers, distributors, salesmen and contractors, as well as public officials interested in studying the latest methods evolved in constructing street and road pavements.

The American Association of Asphalt Paving Technologists and The Asphalt Association, as well as other organizations, will hold their annual meetings in New Orleans in connection with the conference. It is expected that from 1,000 to 1,500 engineers and Federal, state, county and city road officials, as well as asphalt producers, contractors and machinery manufacturers will attend. The program will consist of discussions extending over a period of several days and will relate to the latest, most effective and most economical methods evolved for the construction of the several types of asphalt paving.

Foreign Abstracts and Patent Review

Chemical Resistance of Cement. By Curt Prüssing. In a paper submitted to the International Congress for Testing Materials in Amsterdam, Dr. Grün spoke of the effect of sea water on concrete. In the course of his investigations, Dr. Grün made a study of the behavior of "Erzzement" (iron cement) when mixed with blast furnace slag and exposed to the action of various salt solutions and acids. Theoretically, the admixture of certain slags to "Erzzement" raises the resistance of the latter. It is of interest to compare Mr. Grün's tests of "Erzzement" and blast furnace slag mixtures exposed to sodium sulfate with those carried out in the laboratory of the cement plant at Hemmoor, where a number of samples of cement of different origin were cured in sodium sulfate. The Hemmoor tests covered a longer period of time and used greater concentration ($16\%Na_2SO_4$). They proved that cements with admixtures of slag had completely deteriorated after one year, while finely pulverized portland cement did not show deterioration until during the third year, and "Erzzement" after a period of seven years had not deteriorated at all and possessed a strength of 835 lb./in.^{2}.

Parallel tests of the effect of this solution were made on "Erzzement" and on a first class grade of portland cement. While a 10% ammonium nitrate solution was used, the solution of mixed salt contained, in accordance with the molecular ratio, 7.5 g. ammonium nitrate and 12.5 g. ammonium sulfate per 100 c.c. water. The standard portland cement had completely deteriorated while the "Erzzement" specimens remained practically inert.—*Zement* (1928), 385,387.

Proportion of Cement Used That Does Not Hydrate. Light may be thrown on the matter of the proportion of cement used in concrete that does not hydrate by examining samples from cement that has "air set," wholly or in part. Several examples are given, tests being made on Indian and British cements. The air set cements after regrinding gave fairly good results, even one cement that had set so hard that it had to be broken with a sledge hammer. The author concludes that a greater proportion of the cement could be made to hydrate usefully if a longer mixing time were given in making concrete. He suggests that not less than two minutes time be given to mixing.—*R. P. Mears in Indian Concrete Journal, Bombay, India.*

D'Origny-Sainte-Benoite (Aisne) Cement Mill. There are two cement plants on the Sambre to l'Oise canal. Plant A is the older, Plant B having been recently completed. The combined capacity is 250,000 metric tons per year (1,500,000 bbl.).

Raw materials, a high calcium limestone and clay, which is the overburden of the limestone, are quarried at a distance and sent to the plant by barges through several lines of canals. Bucyrus shovels load the material at the quarry face.

Plant A contains four Smidth wash mills, each group of two run by a 100-hp. motor; two Smidth tube mills, two compartment, 6 m. long and 1.8 m. in diameter, driven (each) by a 100-hp. motor; six correction basins with arm agitators holding 250 cu. m. in all; one collection basin, with compressed air agitation, holding 750 cu. m. The tanks for these are of reinforced concrete.

For burning there are three Smidth kilns, all 45 m. long. Two are 2.1 m. diameter and have an enlarged zone of 2.4 m. diameter. One is uniformly of 2.2 m. diameter. Each is driven by a 50-hp. motor. Coal is ground in a tube mill 7 m. long and 2 m. in diameter driven by a 200-hp. motor. Clinker is ground in three three-compartment mills 10 m. long and 1.8 m. in diameter driven by 200-hp. motors.

Plant B, representing somewhat more advanced practice, has four wash mills, all driven by a single 230-hp. motor, a specially designed Mariolle tube mill 8 m. long and 1.8 m. diameter, driven by a 200-hp. motor, and others of the same size and make as those in Plant A, and five correction basins of 200 cu. m. and one of 750 cu. m. provided with compressed air agitation.

There is but one kiln. It is 75 m. (246 ft.) long and 3 m. (10 ft.) in diameter. Clinker is ground in tube mills like those previously described except that one of the four used is 11 m. long and 2 m. in diameter.

Both plants are supplied with power from a central station employing waste heat boilers.—*J. Proteaux, in Revue des Materiaux de Construction.*

Accelerated Drying of Gypsum. In recent years a marked tendency is becoming manifest to shorten the time of erection of buildings. Thus far tests have been made to accelerate the drying of plaster coats by means of hot air, but this method has at times endangered the quality of the coat. To avoid this, the gypsum industry has undertaken a series of tests at the testing laboratories of the Technical School at Stuttgart, the drying being accelerated by the action of a fan, the air remaining unheated. The tests are made on a wall built of gypsum slabs with a 1½ to 2 cm. thick coat of gypsum and sand. The results obtained are exceedingly favorable. During the first 66 hours, a wall exposed to such action loses 10.4 kg. of its weight, while a wall not so treated loses 1.4 kg. The gypsum plaster on the wall exposed to the blowing action was perfectly hard and devoid of cracks. The rapid evaporation of water during the first days after the coat is applied is of particular importance in the winter when there is danger of freezing. The numerical data obtained as a result of this investigation are available at the Schwab. Gipsverkaufstelle, Stuttgart, Seestr. 26.—*Tonindustrie-Zeitung* (1928), p. 379.

Process of Making Porous, Foamy and Dry Blast Furnace Slag by Means of Water, Steam or Air. DRP 444,318 of June 14, 1923. Kl. 80b. Ludwig von Reiche and Julius Giersbach (Oberscheld, Dillkreis). A porous, foamy and dry blast furnace slag is to be used in the manufacture of cement and block, particularly for furnace linings, concrete, mortar, stucco and insulating materials, etc. Thus far excess water was used. During the time of contact with water, the slag absorbs considerable quantities, which cannot be given off again upon hardening of the slag. In the new process this difficulty is removed for no excess water is used to produce a highly porous and foamy structure in the slag and limits the time of its contact with water to a minimum, thus preventing absorption so far as possible. The liquid slag is discharged on to a horizontal, water-cooled granulating table and brought in contact with just the right quantity of water required for granulation. This water is heated by the slag itself and is kept at uniform heat. The contact results in a porous slag with foamy structure, which is conveyed from the table by suitable means and discharged into a revolving drum of the dryer. In the latter the part of the slag not yet completely dry loses its water due to its own heat. Hot air or flue gases may also be admitted to the dryer.—*Tonindustrie-Zeitung.* (1928), p. 658.

Wire-Reinforced Elastic Concrete Lumber. This method of reinforcement is patented by Karl Wettstein, Brüx, Czechoslovakia. Closely spaced steel wire is placed near the surface of concrete, giving it great elasticity and strength. Considerable deflection may be produced by the loading without resulting in cracks at the bottom surface.

Wire-reinforced concrete lumber is used mainly for roofing of large span walls. The light weight of this lumber permits considerable reduction of the steel sections. The boards are connected to the steel by means of copper wire, the connections receiving a coat of mortar. Expansion joints must be provided every 16 to 22 ft.—*Baumarkt-Leipzig* (1928) 582.

Cement Products

TRADE MARK REGISTERED WITH U. S. PATENT OFFICE

Super-Basements Make Super-Sales

New Ideas for the Education of Builders in the Possibilities of Concrete Units for Work Both Below and Above Grade

By D. R. ("Spec") Collins

NOT so long ago the daily press carried numerous stories of the flights made over the city of Washington by young Col. Lindbergh, carrying with him as passengers members of Congress and their families. It seems that the flying Colonel was attempting,

A 16-in. wall of two 8-in. blocks, bonded every fourth course with header blocks

by these flights, to make Congress "air-minded."

We in the concrete products industry have taken many flights of fancy in our attempts to make contractors, architects and builders "above-grade-minded" as far as concrete building units are concerned. While the members of Congress eagerly accepted Col. Lindbergh's invitation for a ride, we in the concrete products business have had to pull and haul to get our friends in the building industry to agree with us in our convictions that concrete building units are really suitable for above grade work. During the past four years, with the advent of lighter weight units, many of our most stubborn prospects have become convinced that we have a product worthy of their consideration for above grade work.

A 20-in. wall of two 10-in. blocks bonded every fourth course with 12-in. and 8-in. blocks

Still many of our prospects continue to be what we can call "basement-minded." "Concrete building units," they tell you, "are all right for below grade, but we wouldn't take a chance on them as backup or for exterior walls above grade." Try as we may

A 16-in. wall using combination of 12-in. block and brick, showing method of bonding

we have never been able to convince them of the many uses of our material, until they have convinced themselves that concrete building units are suitable for more than house foundations through the super basement route.

Taking it for granted that concrete building units are suitable for basements, manu-

A 16,000 concrete block used in this "super-basement" at Wauwatosa, Wis.

An 8-family apartment building with concrete block foundations, and light-weight concrete units used for back-up

facturers in many sections of the country are gradually increasing the scope of the basement business until it is reaching proportions undreamed of four or five years ago. The products manufacturer who in 1922 sold concrete blocks for a store or an apartment house basement, crowed about the event for a couple of years. Today that same manufacturer takes such a job as a matter of course and once landed uses it to sell more of his material above grade.

The fact that concrete products manufacturers are getting more of the larger basement jobs can in all probability be traced to two things: a universally made quality product recognized as such by building officials and—more aggressive merchandising on the part of the manufacturer. The acceptance of concrete block as a standard material in building codes has led to the acceptance of combinations of these units in building larger walls than were allowed up to a few years ago.

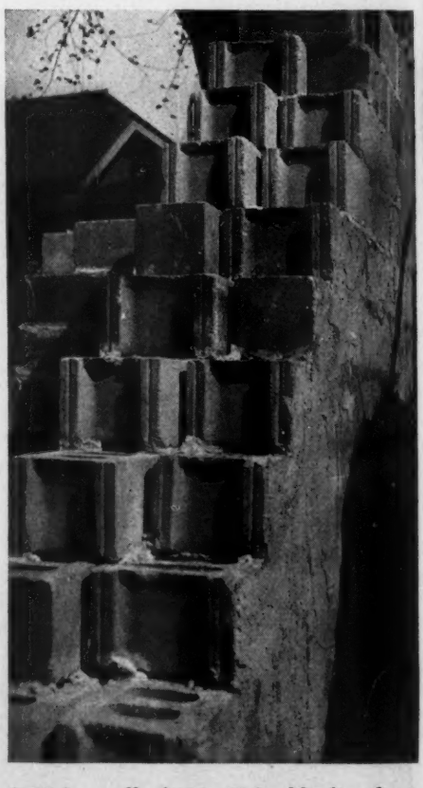
Unusual Basement Construction

One basement I have in mind, which utilized over 15,000 concrete block in its construction, brought out what was, for this locality, a new construction. This basement, which was for a large recreation and store building, was 20 in. thick. First, three courses of double 10-in. wall was laid. The next course, or bonding course, was made up of 12-in. and 8-in. block laid side by side. This procedure was followed throughout the entire basement—three courses of double 10-in. block with a fourth or bonding course of 8-in. and 12-in.

A familiar type of construction for many large basements in this section is a 16-in. wall laid up by combining two 8-in. blocks laid parallel for three courses and bound in at the fourth course with header blocks of the same size, but having plain ends so that a smooth wall might be secured on the inside and backplastering made easier on the outside. This gives a 16-in. wall of unusual rigidity and strength. Such construction for apartment and store basements is fast becoming the rule in this locality rather than the exception. Where a 16-in. basement wall is required the products manufacturer takes it for granted that block construction will be used and goes after it accordingly.

Another type of large basement construction that seems to be gaining favor where a 16-in. wall is required, is a combination of 12-in. concrete block and brick. This gives an interior appearance of a solid brick wall, which is preferred in many cases. While the objection has been raised that this type of construction is not as substantial as the combination of two 8-in. blocks, it has its adherents and many contractors will use no other.

Much of the development of these so-called super-basements has come during the winter months. It is a comparatively easy matter to heat mortar for laying up the large sized concrete masonry units during freezing weather and to protect it. But the protection of mass concrete at this time of the year is a bit uncertain for the average contractor and requires more equipment than he has available. Finding how quickly a job of this kind may be laid up (usually in the same time as it takes to build forms for mass concrete) the contractor continues to use it and the products manufacturer who has sold him on the idea finds he has quite



A 20-in. wall of two 10-in. blocks, showing back plastering of wall

Some 7500 concrete blocks were used in the basement of this building, erected during freezing weather. Light-weight concrete units used as back-up, West Allis, Wis.

considerably expanded his market.

But the point is this—the "basement-minded" contractor or architect on finding how well concrete building units are serving him below grade in projects of a major nature, is far more willing than before to use them above grade. Just as it was with the members of Congress—one ride is usually sufficient to sell the idea if made with a capable pilot. They find that these well-made, uniform, straight units give them a better job than the ununiform, and slightly distorted units which they had thought the only standard for this class of work in the past.

Concrete products manufacturers can develop this super-basement business. It will lead to "bigger and finer" things, as they say in the movies.

Wisconsin Cast Stone Men Organize

AT a meeting May 26 at Green Bay, Wis., the Wisconsin Cast Stone Association was formally organized by eleven manufacturers of the state, and R. W. Albrecht of the Plastic Products Co., Milwaukee, was named as president. A. Broker, president of the Badger Tile Co. of Plymouth, was made secretary-treasurer. The new organization has already started a comprehensive advertising campaign for the furtherance of selling the products of the members. Monthly business meetings will be held in various parts of the state, and there are to be weekly meetings in Milwaukee for the manufacturers in that district.

British Cement Manufacturer Comes to Believe in an "Open-Door Policy"

THE FOLLOWING news item from the *Quarry and Surveyor and Contractors' Journal* (England) shows that British portland cement manufacturers are coming to believe in publicity and an "open-door policy.

"A party of members of the South Wales branches of the Institutions of Civil, Mechanical, County and Municipal Engineers paid a visit on the 10th, ult., at the invitation of Sir John Beynon (chairman) and the directors of the Aberthaw and Bristol Channel Portland Cement Co., to their works at Aberthaw and Rhoose.

"On the arrival at Rhoose the party was split up into three sections, and conducted over the various portions of the works, including the power house, the quarries and the stone silo, under the escort of officials.

"Afterwards the party proceeded to the Aberthaw Works, where luncheon was served. Sir John Beynon, after proposing the toast of 'The Visitors,' said many people in South Wales were not aware of the importance or the extent of the company's cement works. And if there were any who ought to realize that importance they were the engineers of the district. That was why they had been invited on the inspection tour.

"Continuing, he said the weekly output of cement was about 7000 tons. In order to dispose of that output they had to invade very distant markets. They would be quite prepared to relinquish those markets if the local and home markets gave them more support. They could produce the best quality of cement at a price comparable with any in the country. 'We want you,' Sir John concluded, 'to come to your own district, and not go to the Thames, or, worse, to Belgium, where it is produced at starvation wakes.' [The British also object to imported cement!]

"W. J. Beauchamp, in replying, said that this visit to the company's factory struck the note of true modern publicity; the old-fashioned idea of keeping works and machinery behind locked doors from the eye of the ordinary public had vanished. Competitors and buyers were invited to inspect the whole process of cement manufacture.

"After the luncheon a demonstration of ordinary and rapid hardening cement concrete in the early stages of hardening was given, and the crushing plant and laboratories inspected."

Adopts Standards Building Code

THE recently completed building code of Port Chester, N. Y., follows the arrangement recommended by the building code committee of the Department of Commerce for use in the case of small communities.

Employing this arrangement avoids omission or duplication of items, and the requirements are presented in a manner which represents the mature opinion of experts on the subject. Uniform methods of presenting requirements are generally admitted to save architects and contractors much time and energy. The arrangement recommended by the committee is contained in the publication, "Recommended Practice for Arrangement of Building Codes," which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents per copy.

Tractor Used for Hauling Concrete Pipe

CEMENT products companies are steadily finding more uses for tractors around the plant. The accompanying illustration shows a tractor at work at the products plant of the United Fuel Co. at Detroit, Mich. The machine is hauling the larger sections of concrete pipe to the curing and storage grounds, a sled being used to carry five or six sections at each trip. The company also finds other work for the tractor when it is not at work hauling the pipe.

Using a tractor to move pipe at a cement products plant

New Cement Plant for Kentucky Rumored

VARIOUS Kentucky newspapers recently carried the following news item reported from Frankfort, the capital of the state:

"A contract was signed June 8 between the commonwealth of Kentucky and F. B. Drew of McAllister, Okla., Leigh Hunt of New York City, and Robert Hunt of Kansas City, Mo., whereby the three men will erect a $1,750,000 cement plant somewhere in Kentucky.

"The plant is to have a capacity of 4000 bbl. of cement a day, has an annual payroll of $400,000, and is under obligation to use all Kentucky materials available in making the cement.

"The state has contracted to purchase 75% of its cement from the new plant during the next two years, and according to C. Frank Dunn, secretary of the commission, is to be 8⅓ cents lower than the price in neighboring states."

Manitowoc Changes Organization

THE MANITOWOC PORTLAND CEMENT CO. recently filed an amendment to its articles of incorporation with the register of deeds providing for the election of a first, second and third vice-president and specifying the duties of all of its officers. The amendment was signed by C. C. West as president and P. G. Dawson as secretary. —*Herald* (Manitowoc) *News*.

The Rock Products Market

Wholesale Prices of Crushed Stone

Prices given are per ton, F.O.B., at producing point or nearest shipping point

Crushed Limestone

City or shipping point	Screenings, ¼ inch down	⅜ inch and less	¾ inch and less	1½ inch and less	2½ inch and less	3 inch and larger
EASTERN:						
Buffalo, N. Y.	1.30	1.30	1.30	1.30	1.30	1.30
Chaumont, N. Y.	.50	1.75	1.75	1.50	1.50	1.50
Chazy, N. Y.	.75	1.75	1.60	1.30	1.30	1.30
Dundas, Ont.	.53	1.05	1.05	.90	.90	.90
Farmington, Conn.		1.30	1.10	1.00	1.00	
Frederick, Md.	.50@ .75	1.35@1.45	1.15@1.25	1.10@1.20	1.05@1.15	1.05@1.10
Ft. Spring, W. Va.	.35	1.30	1.30	1.25	1.20	1.15
Munns, N. Y.	1.00	1.40	1.25	1.25	1.25	
Prospect, N. Y.	1.00	1.40	1.25	1.25	1.25	
Rochester, N. Y.—Dolomite	1.50	1.50	1.50	1.50	1.50	1.50
St. Vincent de Paul, Que. (n)	.75	1.35	1.15	.95	.85	1.35
Walford, Penn.			1.35h	1.35h	1.35h	1.35h
Watertown, N. Y.	1.00	1.75	1.75	1.50	1.50	1.50
Western New York	.85	1.25	1.25	1.25	1.25	1.25
CENTRAL:						
Afton, Mich.						.50@1.50
Alton, Ill.	1.85		1.85			
Columbia and Krause, Ill.	.90@1.25	.80@1.35	1.00@1.35	.90@1.35	.90@1.35	
Cypress, Ill.	1.00@1.25	1.00@1.25	1.20@1.25	1.20@1.25	1.20@1.25	1.35
Dubuque, Iowa (h)	.85	1.00	1.35	1.35	1.35	1.35
Greencastle, Ind.	1.25	1.10	1.10	1.10	1.00	1.00
Lannon, Wis.	1.00	1.00	1.00	.90	.90	.90
Linwood, Iowa	1.10	1.50	1.50	1.30	1.40	1.40
McCook, Ill.	1.00	1.25	1.25	1.25	1.25	1.25
Marblehead, Ohio (l)	.55	.80	.80	.80	.80	.80
Milltown, Ind.		.90@1.00	1.00@1.10	.90@1.00	.85@ .90	.85@ .90
Northern Ohio Points	.85@1.10	1.25	1.15	1.10	1.05	1.05
Sheboygan, Wis.	1.10	1.10	1.10	1.10	1.10	1.10
Stone City, Iowa	.75		1.20	1.10	1.00	1.00
Thornton, Ill.	.90	1.00	1.25	1.25	1.25	1.25
Toledo, Ohio	1.60	1.70	1.70	1.60	1.60	1.60
Toronto, Canada (m)	2.50	3.00	3.00	2.85	2.85	2.85
Valmeyer, Ill. (fluxing limestone)	.90@1.20			1.75		1.75
Waukesha, Wis.		.90	.90	.90	.90	
Wisconsin Points	.50		1.00	.90	.90	
Youngstown, Ohio	.70j	1.25l@1.35h	1.25l@1.35h	1.25l@1.35h	1.25l@1.35h	1.25l@1.35h
SOUTHERN:						
Cartersville, Ga.	1.35	1.65	1.65	1.35	1.15	
Chico, Texas	1.00	1.30	1.25	1.20	1.10	1.05
Cutler, Fla.	.50r@ .60r			1.75r		1.10r
El Paso, Tex.	1.00	1.00	1.00	1.00	1.00	
Graystone, Ala.	Crusher run, screened, $1 per ton					
Kendrick and Santos, Fla.	3½ in. and less, $1 per ton					
Olive Hill, Ky.		1.00	1.00	1.00	1.00	1.00
Rocky Point, Va.	.50@ .75	1.40@1.60	1.30@1.40	1.15@1.25	1.10@1.20	1.00@1.05
WESTERN:						
Atchison, Kan.	.50	1.80	1.80	1.80	1.80	1.80
Blue Springs & Wymore, Neb.	.25	1.45	1.45	1.35e	1.25d	1.20
Cape Girardeau, Mo.	1.25		1.25	1.25	1.00	
Rock Hill, St. Louis, Mo.	1.00	1.25	1.00@1.25	.90@1.25	.90@1.25	.90@1.25
Sugar Creek, Mo.	.75	1.00	1.20	1.20	1.20	1.20

(r) Cubic yard.

Crushed Trap Rock

City or shipping point	Screenings, ¼ inch down	⅜ inch and less	¾ inch and less	1½ inch and less	2½ inch and less	3 inch and larger
Birdsboro, Penn. (q)	1.20	1.60	1.45	1.35		1.30
Branford, Conn.	.80	1.70	1.45	1.20	1.05	
Eastern Maryland	1.00	1.60	1.60	1.50	1.35	1.35
Eastern Massachusetts	.85	1.75	1.75	1.25	1.25	1.25
Eastern New York	.75	1.25	1.25	1.25	1.25	1.25
Eastern Pennsylvania	1.10	1.70	1.60	1.50	1.35	1.35
Knippa, Tex.	2.50	2.25	1.65	1.35	1.25	
New Britain, Plainville, Rocky Hill, Wallingford, Meridan, Mt. Carmel, Conn.	.80	1.70	1.45	1.20	1.05	
Northern New Jersey	1.40@1.45	1.40@2.10	1.90	1.40@1.50	1.40@1.50	
Richmond, Calif.	.75		1.00	1.00	1.00	
Spring Valley, Calif.	.75	1.10	1.10	1.10	1.10	
Springfield, N. J.	1.40	2.10	2.00	1.60	1.60	
Toronto, Canad (m)		5.80	4.05	4.05		
Westfield, Mass.	.60	1.50	1.35	1.20	1.10	

Miscellaneous Crushed Stone

City or shipping point	Screenings, ¼ inch down	⅜ inch and less	¾ inch and less	1½ inch and less	2½ inch and less	3 inch and larger
Berlin, Utley, Montello and Red Granite, Wis.—Granite	1.80	1.70	1.50	1.40	1.40	
Cayce, S. C.—Granite	.50		1.80	1.80	1.65	
Eastern Penn.—Sandstone	1.35	1.70	1.65	1.40	1.40	1.40
Eastern Penn.—Quartzite	1.20	1.35	1.25	1.20	1.20	1.20
Emathla, Fla.—Flint rock	1.00		2.35			
Lithonia, Ga.—Granite	.75a	2.00b	2.00	1.40	1.40	1.25
Lohrville, Wis.—Granite	1.65	1.70	1.65	1.45	1.50	
Middlebrook, Mo.	3.00@3.50		2.00@2.25	2.00@2.25		1.25@3.00
Richmond, Calif.—Quartzite	.75		1.00	1.00	1.00	
Somerset, Penn. (sand-rock)			1.50 to 1.85			
Toccoa, Ga.			1.30	1.25	1.20	1.20

(a) Sand. (b) to ⅜ in. (c) 1 in., 1.40. (d) 2 in., 1.30. (e) Price net after 10c cash discount deducted. (f) 1 in. to ¼ in., 1.45; 2 in. to ¼ in., 1.35. High calcite fluxing stone. 1.40. (h) Less 10c discount. (j) Less 10% net ton. (l) Less .05. (m) Plus .25 per ton for winter delivery. (n) Crusher run for ballast, .85. (p) Carload prices. (q) Crusher run, 1.40; ¼-in. granolithic finish, 3.00. (r) Cubic yd.

Agricultural Limestone

(Pulverized)

Alton, Ill.—Analysis, 98% $CaCO_3$, 0.01% $MgCO_3$; 90% thru 100 mesh..	6.00
Bettendorf and Moline, Ill.—Analysis, $CaCO_3$, 97%; 2% $MgCO_3$; 50% thru 100 mesh, 1.50; 50% thru 4 mesh	1.50
Blackwater, Mo.—100% thru 4 mesh..	1.00
Branchton, Penn.—100% thru 20 mesh; 60% thru 100 mesh; 45% thru 200 mesh	5.00
Cape Girardeau, Mo.—Analysis, $CaCO_3$, 93½%; $MgCO_3$, 3½%; 90% thru 50 mesh	1.50
Cartersville, Ga.—50% thru 50 mesh....	1.50
Pulverized, per ton	2.00
Chaumont, N. Y.—Pulverized limestone, bags, 4.00; bulk	2.50
Cypress, Ill.—Analysis, 88% $CaCO_3$; 10% $MgCO_3$; 50-90% thru 4 mesh..	1.25
50-90% thru 100 mesh	1.35
Hillsville, Penn.—Analysis, 94% $CaCO_3$; 1.40% $MgCO_3$; 75% thru 100 mesh; sacked	5.00
Hot Springs and Greensboro, N. C.—Analysis, $CaCO_3$, 98-99%; $MgCO_3$, 42%; pulverized; 67% thru 200 mesh; bags	3.95
Bulk	2.70
Jamesville, N. Y.—Analysis 89% $CaCO_3$, 4% $MgCO_3$; pulverized; bags	4.25
Joliet, Ill.—Analysis, 52% $CaCO_3$; 44% $MgCO_3$; 90% thru 50 mesh; bulk	2.50
Knoxville, Tenn.—80% thru 100 mesh; bags, 1.25; bulk	2.70
Linwood, Iowa—Analysis, 97% $CaCO_3$; 2% and less $MgCO_3$; 90% thru 200 mesh, bags, per ton	6.00
90% thru 20 mesh, bulk, per ton	1.50
Marlbrook, Va.—Analysis, 80% $CaCO_3$; 10% $MgCO_3$; bulk	1.75
Marl—Analysis, 95% $CaCO_3$; 0% $MgCO_3$; bulk	2.25
Marion, Va.—Analysis, 90% $CaCO_3$, 2% $MgCO_3$; per ton	2.00
Middlebury, Vt.—Analysis 99.05% $CaCO_3$; 90% thru 50 mesh; bulk, 4.00; paper bags	5.00
Milltown, Ind.—Analysis, 94.50% $CaCO_3$, 33% thru 50 mesh, 40% thru 50 mesh; bulk	1.35@ 1.60
Olive Hill, Ky.—90% thru 4 mesh.....	1.00
Piqua, Ohio—Total neutralizing power 95.3%; 99% thru 10, 60% thru 50; 50% thru 100	2.50@ 2.75
100% thru 10, 90% thru 50, 80% thru 100; bags, 5.10; bulk	3.60
99% thru 100, 85% thru 200; bags, 7.00; bulk	5.50
Rocky Point, Va.—Analysis, $CaCO_3$, 97%; 50% thru 200 mesh, burlap bags, 3.50; paper, 3.25; bulk	2.00
Watertown, N. Y.—Analysis, 96-99% $CaCO_3$; 50% thru 100 mesh; bags, 4.00; bulk	2.50

Agricultural Limestone

(Crushed)

Bedford, Ind.—Analysis, 98% $CaCO_3$; 1%, $MgCO_3$; 95% thru 10 mesh	1.50

(Continued on next page)

Agricultural Limestone

Chico and Bridgeport, Tex. — 50% thru 100 mesh	1.50
Danbury, Conn.; Adams, Ashley Falls and West Stockbridge, Mass.—Analysis, 90% $CaCO_3$, 5% $MaCO_3$; 90% thru 100 mesh, bulk	3.50
100-lb. paper bags	4.75
100-lb. cloth bags	5.25
(All prices less .25, 15 days.)	
Dundas, Ont.—Analysis, 54% $CaCO_3$; $MgCO_3$, 43%; 50% thru 50 mesh	1.00
Ft. Spring, W. Va.—Analysis, 90% $CaCO_3$; 50% thru 50 mesh	1.00
Kansas City, Mo. — 50% thru 100 mesh	1.00
Lannon, Wis.—Analysis, 54% $CaCO_3$, 44% $MgCO_3$; 99% thru 10 mesh; 46% thru 60 mesh	2.00
Screenings (¼ in. to dust)	1.00
Linwood, Iowa—Analysis, 97% $CaCO_3$; 2% and less $MgCO_3$; 90% thru 10 mesh, per ton	1.25
90% thru 4 mesh, per ton	1.10
Marblehead, Ohio—90% thru 100 mesh	3.00
90% thru 50 mesh	2.00
90% thru 4 mesh	1.00
McCook, Ill.—90% thru 4 mesh	.90
Middlepoint, Bellevue, Bloomville, Kenton and Whitehouse, Ohio; Monroe, Mich.; Bluffton, Greencastle and Logansport, Ind.—85% thru 10 mesh, 20% thru 100 mesh	1.50
Moline, Ill., and Bettendorf, Iowa—Analysis, 97% $CaCO_3$, 2% $MgCO_3$; 50% thru 100 mesh; 50% thru 4 mesh	1.50
Mountville, Va. — Analysis, 76.60% $CaCO_3$; $MgCO_3$, 22.83%, 100% thru 20 mesh; 50% thru 100 mesh, paper bags, 4.50; burlap bags	5.00
Stone City, Iowa — Analysis, 98% $CaCO_3$; 50% thru 50 mesh	.75
Waukesha, Wis.—90% thru 100 mesh, 4.50; 50% thru 100 mesh	2.10
90% thru 50 mesh	1.65
Valmeyer, Ill.—Analysis, 96% $CaCO_3$, 2% $MgCO_3$; 100% thru 10 mesh	.90@1.50

Pulverized Limestone for Coal Operators

Hillsville, Penn., sacks, 4.50; bulk	3.00
Joliet, Ill. — Analysis, 50% $CaCO_3$; 42% $MgCO_3$; 95% thru 100 mesh; paper bags (bags extra)	3.50
Linwood, Iowa—Analysis 97% $CaCO_3$; 2% and less $MgCO_3$; 100% thru 20 mesh, 50% thru 200 mesh; paper sacks	6.00
Marblehead, Ohio — Analysis, 83.54% $CaCO_3$; 14.92% $MgCO_3$; 99.8% thru 100 mesh; sacks	4.25
Piqua, Ohio, sacks, 4.50@5.00; bulk	3.00@ 3.50
Rocky Point, Va.—85% thru 200 mesh, bulk	2.25@ 3.50
Waukesha, Wis.—90% thru 100 mesh, bulk	4.50

Glass Sand

Silica sand is quoted washed, dried and screened unless otherwise stated. Prices per ton f.o.b. producing plant.

Cedarville and S. Vineland, N. J.	*1.75@ 2.25
Estill Springs and Sewanee, Tenn.	1.50
Franklin, Penn.	2.00
Klondike, Mo.	2.00
Massillon, Ohio	3.00
Michigan City, Ind.	.30@ .35
Ohlton, Ohio	2.50@ 3.00
Ottawa, Ill.	1.25
Red Wing, Minn.	1.50
San Francisco, Calif.	4.00@ 5.00
Silica and Mendota, Va.	2.00
St. Louis, Mo.	2.00
Utica and Ottawa, Ill.	.75@ 1.00
Zanesville, Ohio	2.50

Miscellaneous Sands

City or shipping point	Roofing sand	Traction
Beach City, Ohio		1.50
Dresden, Ohio		1.25
Eau Claire, Wis.		4.30
Estill Springs and Sewanee, Tenn.	1.35@1.50	1.35@1.50
Franklin, Penn.		1.75
Massillon, Ohio		2.00
Michigan City, Ind.		.30
Montoursville, Penn.		1.25
Ohlton, Ohio	2.00	2.00
Ottawa, Ill.	3.25	1.25
Red Wing, Minn.		1.00
San Francisco, Calif.	3.50	3.50

(Continued on next page)

Wholesale Prices of Sand and Gravel

Prices given are per ton, F.O.B., producing plant or nearest shipping point

Washed Sand and Gravel

City or shipping point	Fine Sand, 1/10 in. down	Sand, ¼ in. and less	Gravel, ½ in. and less	Gravel, 1 in. and less	Gravel, 1½ in. and less	Gravel, 2 in. and less
EASTERN:						
Asbury Park, Farmingdale, Spring Lake and Wayside, N.J.	.65	.55	1.00	1.35	1.40	
Attica and Franklinville, N. Y.	.65	.65	.75	.65	.65	.65
Boston, Mass.‡	1.40	1.40	2.25		2.25	2.25
Buffalo, N. Y.	1.10	1.05	1.05	1.05		1.05
Erie, Penn.	.60	.85		1.40		
Leeds Junction, Me.		.50		1.75	1.25	1.00
Machias Jct., N. Y.	.75	.65	.65		.65	.65
Montoursville, Penn.	1.00	.80	.75	.65	.65	.60
Northern New Jersey	.50	.50	1.25	1.35	1.25	
Somerset, Penn.		2.00				
Troy, N. Y.	.50@ .75*	.50@ .75*	.80@1.00*	.80@1.00*		.80@1.00*
F. o. b. boat, per yd.	1.50	1.50	1.75	1.75		1.75
Washington, D. C.	.55	.55	1.20@1.50	1.20	1.00	1.00
CENTRAL:						
Attica, Ind.			All sizes .75@.85			
Aurora, Moronts, Oregon, Sheridan, Yorkville, Ill.	.50	.35	.20	.50	.60	.60
Barton, Wis.		.40	.60	.65	.65	.65
Chicago District	2.00j					
Columbus, Ohio¶		.70	.70	.70	.70	
Des Moines, Iowa		.40	1.50	1.50	1.50	1.50
Eau Claire, Chippewa Falls, Wis.		.40	.55	.95	.85	
Elkhart Lake, Wis.	.60	.40	.50	.60	.50	.50
Ferrysburg, Mich.		.50@ .80	.60@1.00	.60@1.00		.50@1.25
Grand Haven, Mich.		.60@ .80	.70@ .90	.70@ .90		.70@ .90
Grand Rapids, Mich.	.50	.50	.90	.80	.70	.70
Hamilton, Ohio		1.00	1.00		1.00	
Hersey, Mich.		.50		.60		.70
Humboldt, Iowa	.35	.35	1.35	1.35	1.35	1.35
Indianapolis, Ind.	.60	.60		.90	.75@1.00	.75@1.00
Mankato, Minn.		.45g		.60@1.25h	.70@1.25	1.25e
Mason City, Iowa		.50	.85	1.30	1.25	1.25
Mattoon, Ill.			.75@.85 all sizes			
Milwaukee, Wis.	.96	.91	1.06	1.06	1.06	1.06
Minneapolis, Minn.	.65*	.65*	1.75*	1.75*	1.75*	1.75*
St. Louis, Mo.	1.20e	1.45f	1.55a	1.45	1.45	1.45
St. Paul, Minn.	.35	.35	1.25	1.25	1.25	1.25
Terre Haute, Ind.	2.75	.60	.85	.75	.75	.75
Waukesha, Wis.		.45	.60	.60	.65	.65
Winona, Minn.	.40	.40	1.50	1.25	1.15	1.10
SOUTHERN:						
Brewster, Fla.	.50	.50	3.00	3.00		
Brookhaven, Miss.	1.25	.70	1.25	1.00	.70	.70
Charleston, W. Va.			River sand and gravel, all sizes, 1.40			
Eustis, Fla.		.45				
Fort Worth, Tex.	.75	1.00	1.00	1.00	1.10	1.10
Knoxville, Tenn.	1.00	1.00	1.20	1.20	1.20	1.20
Macon, Ga.		.50		.90	.90	
New Martinsville, W. Va.	1.10	1.00		1.30	1.10	.90
Roseland, Fla.	.15	.15	1.25	.75	.65	.65
WESTERN:						
Kansas City, Mo.	.70	.70@ .75				
Crushton, Durbin, Kincaid, Largo, Rivas, Calif.	.10@ .40	.10@ .40	.50@1.00	.50@1.00	.50@1.00	.50@1.00
Oregon City, Ore.	1.25*	1.25*	1.25*	1.25*	1.25*	1.25*
Otay, Calif.		.35@ .50	.60	.60	.60	.60
Phoenix, Ariz. (k)	1.25*	1.15*	1.50*	1.25*	1.15*	1.10*
Pueblo, Colo.	.80	.60		1.20		1.15
Seattle, Wash.	1.25*	1.25*	1.25*	1.25*	1.25*	1.25*
Steilacoom, Wash.	.50	.50	.50	.50	.50	.50

Bank Run Sand and Gravel

City or shipping point	Fine Sand, 1/10 in. down	Sand, ¼ in. and less	Gravel, ½ in. and less	Gravel, 1 in. and less	Gravel, 1½ in. and less	Gravel, 2 in. and less
Algonquin and Beloit, Wis.			Dust to 3 in., .40			
Brookhaven, Miss.						.60
Buffalo, N. Y.	1.10	.95		.85		.85
Burnside, Conn.		.75*				
Des Moines, Iowa				.50		
Dresden, Ohio				.70	.65	
Eau Claire, Chippewa Fls., Wis					.63	
Fort Worth, Texas						.65
Gainesville, Texas						.55
Grand Rapids, Mich.				.50		
Hamilton, Ohio					1.00	
Hersey, Mich.				.50		
Indianapolis, Ind.			Mixed gravel for concrete work, at .65			
Macon, Ga.	.35					
Oregon City, Ore.	1.25*	1.25*	1.25*	1.25*	1.25*	1.25*
Somerset, Penn.		1.85@2.00		1.50@1.75		
Steilacoom, Wash.	.25					
St. Louis, Mo.			Mine run gravel, 1.35 per ton			
Summit Grove, Ind.	.50	.50	.50	.50	.50	.54
Winona, Minn.	.40	.40	.60	.60	.60	.60
York, Penn.	1.10	1.00				

*Cubic yd. ‡Delivered on job by truck. (a) ¾-in. down. (b) River run. (c) 2½-in. and less. ¶By truck only. (d) Delivered in Hartford, Conn., $1.50 per yd. (e) Mississippi River. (f) Meramec River. (g) Washed and screened river sand. (h) ¾-in. to ¼-in. (j) Lake sand, 1.75, delivered. (k) 60-70% crushed boulders.

Core and Foundry Sands

Silica sand is quoted washed, dried and screened unless otherwise stated.. Prices per ton f.o.b. producing plant.

City or shipping point	Molding, fine	Molding, coarse	Molding, brass	Core	Furnace lining	Sand blast	Stone sawing
Albany, N. Y.	2.00	2.00	2.25			4.00	
Beach City, Ohio	1.75	1.75		1.75@2.00	1.75@2.00		1.65
Dresden, Ohio	1.25@1.50	1.25@1.50	1.50@1.75	1.00@1.25			
Eau Claire, Wis.						3.00	
Elco & Tamms, Ill.	Ground silica per ton in carloads—18.00@31.00						
Estill Springs and Sewanee, Tenn.	1.25			1.25		1.35@1.50	
Franklin, Penn.	1.75	1.75		1.75			
Kasota, Minn.							1.00
Kerrs, Ohio	1.10@1.50	1.25@2.00	2.00			2.75@3.00	
Massillon, Ohio	2.25	2.25		2.25	2.50		
Michigan City, Ind.				.30@ .35			
Montoursville, Penn.				1.35@1.50			
New Lexington, O.	2.00	1.25					
Ohlton, Ohio	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Ottawa, Ill.	1.00	1.25	1.50	1.75	1.25	3.50	2.00
Red Wing, Minn.(d)					1.50	3.00	1.50
San Francisco, Calif.[1]	3.50†	5.00†	3.50†	3.50@5.00†	3.50@5.00†	3.50@5.00†	
Silica, Mendota, Va.	Potters flint, 7.00@10.00						
Utica & Ottawa, Ill.	.40@1.00f	40.@1.00f	.75@1.00	.40@1.00f	.60@1.00f	2.23@3.25	1.00@3.25
Utica, Ill.	.60	.70		.75	1.00		
Warwick, Ohio	1.50*@2.00	1.50*@2.00		1.50*@2.00			
Zanesville, Ohio	2.00	1.50	2.00	2.50	2.00		

*Green. †Fresh water washed, steam dried. [1]Core, washed and dried, 2.50. (d) Filter sand, 3.00. (e) Filter sand, 3.00@4.25. (f) Crude and dry.

Crushed Slag

City or shipping point	Roofing	¼ in. down	⅜ in. and less	¾ in. and less	1½ in. and less	2½ in. and less	3 in. and larger
EASTERN:							
Buffalo, N. Y., Erie and Dubois, Pa.	2.25	1.25	1.25	1.35	1.25	1.25	1.25
Eastern Penn.	2.50	1.20	1.50	1.20	1.20	1.20	1.20
Northern N. J.	2.50	1.20	1.50	1.20	1.20	1.20	1.20
Reading, Penn.	2.50	1.25		1.25			
Western Penn.	2.50	1.25	1.50	1.25	1.25	1.25	1.25
CENTRAL:							
Ironton, Ohio	2.05*	1.30*	1.80*	1.45*	1.45*	1.45*	
Jackson, Ohio	2.05*	1.05*	1.80*	1.30*	1.05*	1.30*	
Toledo, Ohio	1.50	1.35	1.35	1.35	1.35	1.35	1.35
SOUTHERN:							
Ashland, Ky.		1.45*		1.45*	1.45*	1.45*	
Ensley and Alabama City, Ala.	2.05	.80	1.35	1.25	.90	.90	.80
Longdale, Roanoke, Ruesens, Va.	2.50	1.00	1.25	1.25	1.25	1.15	1.15
Woodward, Ala.	2.05*	.80*	1.35*	1.25*	.90*	.90*	

*5c per ton discount on terms.

Lime Products (Carload Prices Per Ton F.O.B. Shipping Point)

	Finishing hydrate	Masons' hydrate	Agricultural hydrate	Chemical hydrate	Ground burnt lime, Blk.	Ground burnt lime, Bags	Lump lime, Blk.	Lump lime, Bbl.
EASTERN:								
Berkeley, R. I.			12.00					2.00
Buffalo, N. Y.	11.50	7.50	7.50	12.00	8.00	11.00	7.50	1.50[16]
Lime Ridge, Penn.					5.00			
West Stockbridge, Mass.	12.00	10.00	5.60					2.00[13]
Williamsport, Penn.	10.00@11.00	8.50@9.00	8.50@9.00		7.00	9.00	5.00	
York, Penn., & Oranda, Va.	11.50[7]	8.50@9.50[7]	8.50@9.50[7]	8.50@10.50[7]	8.00	9.25	7.00	1.40[8]
CENTRAL:								
Afton, Mich.							7.50	1.35
Carey, Ohio	11.50	7.50	7.50		8.00		8.00	1.50
Cold Springs, Ohio		8.00	8.00					
Gibsonburg, Ohio	11.50				8.00	10.00		
Huntington, Ind.	11.50	7.50	7.50	12.00	8.00	11.00	7.50	1.50[16]
Luckey, Ohio[6]	12.50							
Milltown, Ind.		8.50@10.00		10.00[8]			8.50[22]	1.35[10]
Ohio points	11.50	7.50	7.50	12.00	8.00	11.00	7.50	1.50[16]
Scioto, Ohio		7.50	7.50	8.50	8.25	.62½	7.00	1.50
Sheboygan, Wis.		10.50					9.50	2.00[4]
Wisconsin points[9]		11.50					9.50	
Woodville, Ohio	11.50	7.50	7.50	12.50	9.00	10.00[9]	9.00	1.50[2]
SOUTHERN:								
El Paso, Texas							7.00	
Frederick, Md.		8.00@9.50	8.00@9.50			9.50[15]	7.00[15]	
Graystone & Landmark, Ala.	12.50	9.00		12.50			7.50	1.35
Keystone, Ala.	19.00	9.00	9.00	10.00			7.50	1.35
Knoxville, Tenn.	19.25	8.50	8.50	8.50			6.00	1.15
Ocala, Fla.		10.00	9.00				10.00	1.40
WESTERN:								
Kirtland, N. M.							15.00	
Los Angeles, Calif.	15.00	14.00	12.00	18.00			13.50	
San Francisco, Calif.	19.50	16.00	13.00	19.50	14.50	.80	14.50	1.85
Tehachapi, Calif.[13]	17.00	15.00	12.00@15.00[11]	17.00	16.00		16.00	2.00
Seattle, Wash.	19.00	19.00	12.00	19.00	19.00		18.60	2.30

[1] Barrels. [3] Net ton. [5] Wooden, steel 1.70. [6] Steel. [8] 180 lb. [9] Dealers' prices, net 30 days less 25c discount per ton on hydrated lime and 5c per bbl. on lump if paid in 10 days. [7] In paper bags, including bags. [8] To 11.00. [9]80-lb. [10] To 1.50. [11] Refuse or air slack, 10.00@12.00. [12] To 3.00. [13] Delivered in Southern California. [15] To 8.00 [16] To 1.70. [22] To 9.00 [20] To 16.50.

Miscellaneous Sands

(Continued)

City or shipping point	Roofing Sand	Traction
Utica & Ottawa, Ill.	1.00@ 3.25	.75
Warwick, Ohio		2.00
Zanesville, Ohio		2.50

*Damp.

Talc

Prices given are per ton f.o.b. (in carload lots only), producing plant, or nearest shipping point.

Chatsworth, Ga.:	
Crude talc (for grinding)	5.00@50.00
Ground talc (20-50 mesh), bags	5.75@ 8.00
Ground talc (150-200 mesh), bags	6.50@15.50
Pencils and steel crayons, gross	.75@ 2.75
Chester, Vt.:	
Ground talc (150-200 mesh), paper bags	9.00@ 9.50
Same, burlap bags, bags extra	8.00@ 8.50
Chicago and Joliet, Ill.:	
Ground (150-200 mesh), bags	30.00
Cromleys Mt., Md.:	
Crude talc	63.00
Dalton, Ga.:	
Crude talc (for grinding)	5.00
Ground talc (150-200 mesh), bags	12.00
Pencils and steel worker's crayons, per gross	1.00@ 2.50
Emeryville, N. Y.:	
(Double air floated) including bags;	
325 mesh	14.75
200 mesh	13.75
Glendon, N. C.:	
Ground talc (150-200 mesh), bulk	6.00@10.00
Ground talc (150-200 mesh), bags	8.00@14.00
Pencils and steel crayons, gross	1.05@ 2.00
Blanks, .08 per lb.; cubes	50.00
Hailesboro, N. Y.:	
Ground white talc (double and triple air floated) 200-lb. bags, 300-350-mesh	15.50@20.00
Henry, Va.:	
Crude (mine run)	3.50@ 4.00
Ground talc (150-200 mesh), bags	7.50@14.00
Joliet, Ill.:	
Ground talc (150-200 mesh) in bags:	
California white	30.00
Southern white	20.00
Illinois talc	10.00
Keeler, Calif.:	
Ground (200-300 mesh), bags	20.00@30.00
Natural Bridge, N. Y.:	
Ground talc (300-325 mesh), bags	12.00@15.00

Rock Phosphate

Prices given are per ton (2240-lb.) f.o.b. producing plant or nearest shipping point.

Lump Rock

Columbia, Tenn.—B.P.L. 65-70%	3.50@ 4.50
Gordonsburg, Tenn.—B.P.L. 65-70%	3.75@ 4.00
Mt. Pleasant, Tenn.—B.P.L. 72%	5.00@ 5.50
Tennessee — F.o.b. mines, gross ton, unground brown rock, B.P.L. 72%	5.00
B.P.L. 75%	6.00
Twomey, Tenn.—B.P.L. 65%, 2000 lb.	8.00@ 9.00

Ground Rock

(2000 lb.)

Centerville, Tenn.—B.P.L. 65%	8.00
Gordonsburg, Tenn.—B.P.L. 65-70%	4.00@ 4.50
Mt. Pleasant, Tenn.—B.P.L. 72%	5.00@ 5.50
Twomey, Tenn.—B.P.L. 65%	8.00@ 9.00

Florida Phosphate

(Raw Land Pebble)

(Per Ton)

Florida — F.o.b mines, gross ton, 68/66% B.P.L., Basis 68%	3.25
70% min. B.P.L., Basis 70%	3.75

Mica

Prices given are net, f.o.b. plant or nearest shipping point.

Pringle, S. D.—Mine run, per ton	125.00
Punch mica, per lb.	.06
Scrap, per ton, carloads	20.00
Rumney Depot, N. H.—Per ton,	
Mine run	300.00
Clean shop scrap	25.00
Mine scrap	22.50@24.00
Roofing mica	37.50
Punch mica, per lb.	.12

Cut mica—50% from Standard List.

Special Aggregates

Prices are per ton f.o.b. quarry or nearest shipping point.

City or shipping point	Terrazzo	Stucco-chips
Brandon, Vt. — English pink, English cream and coral pink	¶12.50@‖14.50	¶12.50@‖14.50
Brighton, Tenn.—Pink marble chips	§3.00	§3.00
Crown Point, N. Y.—Mica spar		9.00@10.00
Davenport, Ia.—White limestone, in bags	6.00	6.00
Easton, Penn.—Green stucco		12.00@18.00
Green granite		14.00@20.00
Harrisonburg, Va.—Bulk marble (crushed, in bags)	†12.50	†12.50
Ingomar, Ohio—Concrete facings and stucco dash		11.00@18.00
Middlebrook, Mo.—Red		20.00@25.00
Middlebury, Vt.—Middlebury white	¶9.00@‖11.00	¶9.00@‖11.00
Middlebury and Brandon, Vt.—Caststone, per ton, including bags		4.00@ 5.50
Phillipsburg, N. J.—Royal green granite		14.00@18.00
Randville, Mich.—Crystalite crushed white marble, bulk	4.00	4.00@ 7.00
Rose pink granite, bulk		12.00
Stockton, Calif.—"Natrock" roofing grits		12.00@18.00
Tuckahoe, N. Y.—Tuckahoe white	10.00	
Warren, N. H.		¶7.90@‖8.95
Wauwatosa, Wis.		20.00@32.00
Wellsville, Colo. — Colorado Travertine Stone	15.00	15.00

†C.L. L.C.L. 16.00.
§Bulk, car lots, minimum 30 tons.
¶C.L. ‖L.C.L.

Potash Feldspar

Auburn and Topsham, Me. — Color white, 98% thru 140-mesh	19.00
Buckingham, Ore.—White, analysis, K_2O, 12-13%; Na_2O, 1.75%; bulk	9.00
De Kalb Jct., N. Y.—Color, white; analysis, K_2O, 9.63%; Na_2O, 1.01%; SiO_2, 69.72%; Fe_2O_3, .00%; Al_2O_3, 18.6%; bulk (crude)	9.00
East Hartford, Conn.—Color, white, 40 mesh to 200 mesh	15.00@28.00
East Liverpool, Ohio—Color, white; 98% thru 200 mesh, bulk	19.35
Soda feldspar, crude, bulk, per ton	22.00
Glen Tay Station, Ont.—Color, red or pink; analysis, K_2O, 12.81%; crude	7.00
Keystone, S. D.—White; bulk (crude)	8.00
Los Angeles, Calif.—Color, white; analysis, K_2O, 12.16%; Na_2O, 1.53%; SiO_2, 65.60%; Fe_2O_3, .10%; Al_2O_3, 19.20%; Arizona spar, crude, bags, 11.55@12.80; bulk	10.00@11.50
Pulverized, 95% thru 200 mesh; bags, 19.73@23.50; bulk	18.43@22.20
Pulverized, 20% thru 80 mesh; bags, 17.60; bulk	16.50
Murphysboro, Ill.—Color, prime white; analysis, K_2O, 12.60%; Na_2O, 2.35%; SiO_2, 63%; Fe_2O_3, .06%; Al_2O_3, 18.20%; 98% thru 200 mesh; bags, 21.00; bulk	20.00
Penland, N. C.—White; crude, bulk	8.00
Ground, bulk	16.50
Spruce Pine, N. C.—Color, white; analysis, K_2O, 10%; Na_2O, 3%; Si_2O, 68%; Fe_2O_3, 0.10%; Al_2O_3, 18%; 99½% thru 200 mesh; bulk. (Bags 15c extra.)	18.00
Crude feldspar, bulk	9.00
Tenn. Mills—Color, white; analysis K_2O, 10%; Na_2O_3, 3%; 68% SiO_2; 99½% thru 200 mesh; bulk (Bags, 15c extra)	18.00
Toronto, Can.—Color, flesh; analysis K_2O, 12.75%; Na_2O, 1.96%; crude	7.50@ 8.00

Chicken Grits

Afton, Mich. (Limestone), per ton	1.75
Belfast, Me.—(Limestone), per ton	‡10.00
Chico and Bridgeport, Tex.—Hen	¶9.00
Baby chick, per ton	¶8.00
Danbury, Conn.; Adams, Ashley Falls, and West Stockbridge, Mass. (Limestone	‡7.50@*9.00
Davenport, Ia.—(Limestone) bags, per ton	6.00
Easton, Penn.—In bags	8.00
El Paso, Tex.—Per ton	1.00
Knoxville, Tenn.—Per bag	1.25
Los Angeles, Calif.—(Feldspar), per ton, including sacks	13.00
Marion, Va.—(Limestone), bulk, 5.00; bagged, 6.50; 100-lb. bag	.50
Middlebury, Vt.—Per ton	10.00
Randville, Mich.—(Marble), bulk	6.00
Rocky Point, Va.—(Limestone), 100-lb. bags, 50c; sacks, per ton, 6.00; bulk	5.00
Seattle, Wash.—(Gypsum), bulk, per ton	10.00
Tuckahoe, N. Y.	8.00
Waukesha, Wis.—(Limestone), per ton	8.00
Wisconsin Points—(Limestone), per ton	15.00

*L.C.L. †Less than 5-ton lots. ‡C.L. ¶100-lb. bags.

Sand-Lime Brick

Prices given per 1000 brick f.o.b. plant or nearest shipping point, unless otherwise noted.

Albany, Ga.	9.00@10.00
Anaheim, Calif.	10.50@11.00
Barton, Wis.	10.50
Boston, Mass.	17.00*
Brighton, N. Y.	19.75*
Brownstone, Penn.	11.00
Dayton, Ohio	12.50@13.50
Detroit, Mich.	13.00@16.00*d
Farmington, Conn.	13.00
Flint, Mich.	18.00†
Grand Rapids, Mich.	13.50
Hartford, Conn.	14.00@19.00*
Jackson, Mich.	12.25
Lakeland, Fla.	10.00@11.00
Lake Helen, Fla.	9.00@12.00
Lancaster, N. Y.	12.50
Madison, Wis.	12.50a
Michigan City, Ind.	11.00
Milwaukee, Wis.	13.00*
Minneapolis, Minn.	10.00
New Brighton, Minn.	10.00
Pontiac, Mich.	12.50@15.00*
Portage, Wis.	16.00
Prairie du Chien, Wis.	18.00@22.50
Rochester, N. Y.	19.75
Saginaw, Mich.	13.50b
San Antonio, Texas	16.00
Sebewaing, Mich.	12.50
Sioux Falls, S. Dak.	13.00
South River, N. J.	13.00
Syracuse, N. Y.	18.00@20.00
Toronto, Canada	15.00†
Wilkinson, Fla.	12.00@16.00
Winnipeg, Canada	15.00

*Delivered on job. †5% disc., 10 days. ¶Dealers' price. (a) Less 50c discount per M, 10th of month. (d) 5% disc., 10th of month.

Portland Cement

Prices per bag and per bbl., without bags, net in carload lots.

	Per Bag	Per Bbl.
Albuquerque, N. M.	84¼	3.37
Atlanta, Ga.		2.35
Baltimore, Md.		2.15‡@2.25
Birmingham, Ala.		2.10
Boston, Mass.		2.13@2.33
Buffalo, N. Y.		2.00‡@2.10
Butte, Mont.	.90¼	3.61
Cedar Rapids, Iowa		2.24
Charleston, S. C.		2.35
Cheyenne, Wyo.	.64	2.56
Chicago, Ill.	.51¼	2.05
Cincinnati, Ohio		2.22
Cleveland, Ohio		2.24
Columbus, Ohio		2.22
Dallas, Texas		2.00
Davenport, Iowa		2.24
Dayton, Ohio		2.24
Denver, Colo.	.63¾	2.55
Des Moines, Iowa		2.05
Detroit, Mich.		1.90
Duluth, Minn.		2.04
Houston, Texas		2.00
Indianapolis, Ind.	.54¾	2.19
Jackson, Miss.		2.02
Jacksonville, Fla.		2.20
Jersey City, N. J.		2.03‡@2.13
Kansas City, Mo.		1.92
Los Angeles, Calif.	.60	2.40
Louisville, Ky.	.55½	2.22
Memphis, Tenn.		2.04
Milwaukee, Wis.		2.20
Minneapolis, Minn.		2.12@2.22
Montreal, Que.		1.60
New Orleans, La.		2.07
New York, N. Y.		1.93‡@2.03
Norfolk, Va.		2.07
Oklahoma City, Okla.		2.46
Omaha, Neb.		2.36
Peoria, Ill.		2.22
Philadelphia, Penn.		2.11‡@2.21
Phoenix, Ariz.		3.26
Pittsburgh, Penn.		2.04
Portland, Colo.		2.80
Portland, Ore.		2.40‡@2.60
Reno, Nev.		2.91
Richmond, Va.		2.24‡@2.40
Salt Lake City, Utah	.70¼	2.81
San Francisco, Calif.		2.21
Savannah, Ga.		2.50
St. Louis, Mo.		1.95
St. Paul, Minn.		2.12@2.27
Seattle, Wash.		2.40
Tampa, Fla.		2.25
Toledo, Ohio		2.20
Topeka, Kan.		2.41
Tulsa, Okla.		2.33
Wheeling, W. Va.		2.12
Winston-Salem, N. C.		2.29

Mill prices f.o.b. in carload lots, without bags, to contractors.

	Per Bag	Per Bbl.
Albany, N. Y.	.43¾	1.75
Bellingham, Wash.		2.10
Buffington, Ind.		1.80
Chattanooga, Tenn.		2.45*
Concrete, Wash.		2.35
Davenport, Calif.		2.45*
Hannibal, Mo.		1.90
Hudson, N. Y.		1.75
Leeds, Ala.		1.65
Lime and Oswego, Ore.		2.50‡
Mildred, Kan.		2.35
Nazareth, Penn.		2.15
Northampton, Penn.		1.75
Richard City, Tenn.		2.05
Steelton, Minn.		1.85
Toledo, Ohio		2.20
Universal, Penn.		1.80

NOTE—Add 40c per bbl. for bags.
*Includes sacks. ‡10c discount, 15 days.

Gypsum Products—CARLOAD PRICES PER TON AND PER M SQUARE FEET, F.O.B. MILL

	Crushed Rock	Ground Gypsum	Agricultural Gypsum	Stucco Calcined Gypsum	Cement and Gauging Plaster	Wood Fiber	Gauging White	Plaster Sanded	Cement Keene's	Finish Trowel	—Plaster Board— ¼x32x 36". Per M Sq. Ft.	—Plaster Board— ⅜x32x 36". Per M Sq. Ft.	Wallboard, ⅜x32 or 48". Lengths 6'-10'. Per M Sq. Ft.
Acme, Tex.	1.70	4.00	4.00	4.00	4.00	4.50	.....	.....	.....	.....	.....	15.00	20.00
Arden, Nev., and Los Angeles, Calif.	3.00	8.00u	8.00u	10.70u	10.70u	.....	.....	.....	.....	11.70u	.....	.....	.....
Blue Rapids, Kan.	1.70	4.00	.....	.....	.....	.....	10.00	.....	.....	.....	.....	15.00	20.00
Centerville, Iowa	3.00	10.00	15.00	10.00	10.00	10.50	13.50	.....	.....	13.50	.....	.....	.....
Des Moines, Iowa	3.00	8.00	9.00	10.00	10.00	10.50	13.50	12.00	24.00	22.00	18.00	21.00	30.00
Detroit, Mich.	.....	.....	.....	.....	14.30o	12.30m	.....	m9.00@11.00o	.....	.....	.....	.....	.....
Delawanna, N. J.	.....	.....	.....	.....	.....	.....	.....	7.25	.....	.....	13.00	14.00	.....
Douglas, Ariz.	.....	.....	6.00	14.50	15.00	.....	18.00	.....	30.00	.....	.....	.....	.....
Fort Dodge, Iowa	1.70	4.00	6.00	9.00	9.00	9.50	.....	.....	.....	19.00	.....	15.00	20.00
Grand Rapids, Mich.	2.65	4.00	6.00	6.00	9.00	9.00	17.65	.....	22.75	19.00	12.00	15.00	18.00
Gypsum, Ohio	1.70@3.00	4.00	6.00	7.00@9.00	9.00	9.00	19.00	7.00	24.50	19.00	.....	15.00	20.00@25.00
Los Angeles, Calif.	.....	7.50@9.00	7.50@9.00	.....	11.50@13.50	.....	.....	.....	.....	.....	.....	.....	.....
Medicine Lodge, Kan.	1.70	4.00	.....	.....	.....	.....	.....	.....	15.00	.....	.....	15.00	20.00
Port Clinton, Ohio	3.00	4.00	6.00	10.00	9.00	9.00	21.00	7.00	30.15	20.00	.....	20.00	30.00
Portland, Colo.	.....	.....	.....	10.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Francisco, Calif.	.....	.....	9.00	13.40	14.40	.....	15.40	.....	.....	.....	.....	.....	.....
Seattle, Wash. (b)	6.00	10.00	10.00	12.00	13.00	.....	.....	.....	.....	.....	.....	.....	.....
Sigurd, Utah	.....	.....	.....	.....	.....	.....	.....	.....	21.50	.....	.....	.....	.....
Winnipeg, Man.	5.00	5.00	7.00	13.00	14.00	14.00	.....	.....	.....	.....	20.00	25.00	33.00

NOTE—Returnable bags, 10c each; paper bags, 1.00 per ton extra (not returnable). (a) Hardwall plaster, 13.00; casting, finishing, molding, 14.00. (b) Calacoustic plaster 10.00 at mill; (m) includes paper bags; (o) includes jute sacks; (u) includes sacks.

Market Prices of Cement Products

Concrete Block

Prices given are net per unit, f.o.b. plant or nearest shipping point

City or shipping point	Sizes 8x8x16	8x10x16	8x12x16
Camden, N. J.	17.00	.....	.....
Cement City, Mich.		5x8x12—55.00¶	
Chicago District	200.00¶	.....	.....
Columbus, Ohio	16.00	.....	.....
Detroit, Mich.	.15@ .17†	.....	.24@.26†
Forest Park, Ill.	21.00*	.....	.....
Grand Rapids, Mich.	15.00*	.....	.....
Graettinger, Iowa	.16@ .18	.....	.....
Indianapolis, Ind.	.10@ .12a	.....	.....
Los Angeles, Calif.	4x8x12—5.00*	4x6x12—4.20*	
Olivia and Mankato, Minn.	9.50b	.....	.....
Somerset, Penn.	.18@ .20	.....	.....
Tiskilwa, Ill.	.16@ .18†	.....	.....
Yakima, Wash.	20.00*	.....	.....

*Price per 100 at plant. †Rock or panel face. (a) Face. ‡Delivered. ¶Price per 1000. (b) Per ton. (c) Plain. (d) 5x8x12—65.00 M, 5½x8x12—68.50 M.

Cement Roofing Tile

Prices are net per square, carload lots, f.o.b. nearest shipping point, unless otherwise stated.

Camden and Trenton, N. J.—8x12, per sq.	
Red	15.00
Green	18.00
Chicago, Ill.—Per sq.	20.00
Detroit, Mich.—5x8x12, per M	67.50
Houston, Texas—Roofing Tile, per sq.	25.00
Indianapolis, Ind.—9x15-in.	Per sq.
Gray	10.00
Red	11.00
Green	13.00
Waco, Texas:	Per sq.
4x4	.60

Cement Building Tile

Cement City, Mich.:	Per 100
5x8x12	5.00
Chicago District (Haydite):	
4x 8x16, per M	140.00
8x 8x16, per M	220.00
8x12x16, per M	300.00
Columbus, Ohio:	
5x8x12	6.50
Detroit, Mich.:	
5½x8x12, per M	75.00
Grand Rapids, Mich.:	
5x8x12	8.00
Longview, Wash.:	
4x6x12	5.00
4x8x12	6.25
Mt. Pleasant, N. Y.:	Per 1000
5x8x12	78.00
Houston, Texas:	
5x8x12 (Lightweight)	80.00
	Per 100
Pasadena, Calif. (Stone Tile):	Per 100
3½x4x12	3.00
3½x6x12	4.00
3½x8x12	5.50
Tiskilwa, Ill.:	Per 100
8x8	15.00
Wildasin Spur, Los Angeles, Calif. (Stone-Tile):	Per 1000
3½x6x12	50.00
3½x8x12	60.00
Prairie du Chien, Wis.:	
5x8x12	82.00
5x4x12	46.00
5x8x 6 (half-tile)	41.00
5x8x10 (fractional)	82.00
	Each
Yakima, Wash. (Building Tile):	
5x8x12	.10

Cement Drain Tile

Graettinger, Iowa.—Drain tile, per foot: 5-in., .04½; 6-in., .05½; 8-in., .09; 10-in., .13; 12-in., .17½; 14-in., .25; 16-in., .32; 18-in., .40; 20-in., .50; 24-in., .80; 26-in., 1.00; 28-in., 1.10; 30-in.	1.25
Longview, Wash.—Drain tile, per foot: 3-in., .05; 4-in., .06; 6-in., .10; 8-in., .15; 10-in.	.20
Olivia and Mankato, Minn.—Cement drain tile, per ton	8.00
Tacoma, Wash.—Drain tile, per M:	
3 in.	40.00
4 in.	50.00
6 in.	75.00
8 in.	100.00
Waukesha, Wis.—Drain tile, per ton	8.00

Concrete Brick

Prices given per 1000 brick, f.o.b. plant or nearest shipping point.

	Common	Face
Appleton, Minn.	22.00	25.00@40.00
Baltimore, Md. (Del. according to quantity)	15.50	22.00@50.00
Camden and Trenton, N. J.	17.00	.....
Chicago District	16.00	.....
Columbus, Ohio	16.00	17.00
El Paso, Tex.—Clinker	11.00	.....
Ensley, Ala. ("Slagtex")	14.50	22.50@33.50
Eugene, Ore.	25.00	35.00@75.00
Forest Park, Ill.	.....	37.00
Friesland, Wis.	22.00	32.00
Longview, Wash.*	15.00	22.50@65.00
Milwaukee, Wis.	14.00	20.00@32.00
Mt. Pleasant, N. Y.	.....	14.00@ 23.00
Omaha, Neb.	18.00	30.00@ 40.00
Pasadena, Calif.	10.00	.....
Philadelphia, Penn.	14.75	20.00
Portland, Ore.	17.50	23.00@ 55.00
Mantel brick—100.00@150.00		
Prairie du Chien, Wis.	14.00	22.50@ 25.00
Rapid City, S. D.	18.00	30.00@35.00
Waco, Texas	16.50	32.50@125.00
Watertown, N. Y.	20.00	35.00
Westmoreland Wharves, Penn.	14.75	20.00
Winnipeg, Man.	14.00	22.00
Yakima, Wash.	22.50	.....

*40% off List.

Recent Contract Prices for Rock Products

CONTRACTS recently let on bids received for rock products are as follows:

Baton Rouge, La.—The Glen Hill Gravel Co., Grayson, La., submitted a bid of $1.45 per cu. yd. for 1569 cu. yd. of gravel to be used for highway construction in the vicinity of La Salle parish. The Monroe Sand and Gravel Co. bid $2.22 on the same project.

Earlville, Ill.—The following bids were received for supplying 22,640 yd. of gravel for road work in Meriden township: Smith and Harrington, Marseilles, Ill., shipped in gravel, $3.59+ per yd; Colby Gravel Co., District 1 (10 miles), shipped in gravel, $2.99+ per yd.; L. Willey, local gravel, $2.07+ per yd.

Morrison, Ill.—Bids received by the highway engineer for 9600 yd. of gravel, crushed or screened, to 1 in., from eight companies, ran fairly uniform and averaged approximately $2.40 per yd. Two bids submitted on pit run were $2.01 and $1.98+ per yd.

Ironton, Ohio—Lawrence county officials awarded a contract to the Ironton Gravel Co. for the supplying of 4000 cu. yd. of gravel at $1.15 per cu. yd. The Huntington Gravel and Supply Co. bid $1.25 per yd. Other contracts let in this vicinity are as follows: 350 yd. limestone at $0.97 per yd., 300 yd. limestone at $1.49 per yd., 250 yd. limestone at $1.67 per yd., 250 yd. limestone at $1.01 per yd. Other bids on this contract ranged from $1.09 to $1.17; 250 yd. limestone at $1.49 per yd., 250 yd. bluestone at $1.85 per yd., 250 yd. limestone at $1.66 per yd., 500 yd. limestone at $1.85 per yd., 400 yd. limestone at $2.05 per yd.

Vermont Slate Men to Hold Annual Outing

A RECENT announcement in the *Slate News Bulletin*, the official organ of the National Slate Association, states that the annual outing of the Vermont Slate Industry Association will be held at Lake Bomoseen, Vt., on June 30. This outing has always been an enjoyable one in the past, and this year's affair is to be bigger and better than ever, according to the official announcement.

Current Prices Cement Pipe

Prices are net per foot f.o.b. cities or nearest shipping point in carload lots unless otherwise noted

Culvert and Sewer	4 in.	6 in.	8 in.	10 in.	12 in.	15 in.	18 in.	20 in.	22 in.	24 in.	27 in.	30 in.	36 in.	42 in.	48 in.	54 in.	60 in.
Detroit, Mich.								15.00 per ton									
Detroit, Mich. (c)																	
Sewer	.10	.12	.22	.30	.40	.60	.90	1.20	.....	1.75	2.00	2.50	3.30	4.50	5.75	6.50	8.00
Culvert	.....	.....	.....	.....	.95	1.25	1.60	.....	.....	2.25	2.50	3.00	3.50	5.00	6.50	8.00	10.00
Grand Rapids, Mich.		4 in. to 12 in., 72% off standard sewer price list; 15 in., 65% off; 18 in. to 24 in., 62% off; 27 in. to 36 in., 60% off															
Houston, Texas	.....	.19	.28	.43	.55½	.90	1.30	.....	1.70†	2.20	.....	.....	.....	.....	.....	.....	.....
Indianapolis, Ind. (a)	.....	.....	.....	.75	.85	.90	1.15	.....	.....	1.60	.....	2.50	.....	.....	.....	.....	.....
Longview, Wash.								Sewer pipe 40% off list; culvert—list									
Mankato, Minn. (b)	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.50	1.75	2.50	3.25	4.25	.....	.....	.....
Newark, N. J.								6 in. to 24 in., $18.00 per ton									
Norfolk, Neb. (b)	.....	.....	.....	.90	1.00	1.13	1.42	.....	.....	2.11	.....	2.75	3.58	.....	6.14	.....	7.78
Olivia, Mankato, Minn.								12.00 per ton									
Paullina, Iowa‡	.....	.....	.....	.....	.....	.....	.....	2.25	.....	2.11	.....	2.75	3.58	.....	6.14	.....	7.78
Somerset, Penn.	.....	.....	.....	.....	1.08	1.25	1.65	.....	.....	2.50	.....	3.65	4.85	7.50	8.50	.....	.....
Tiskilwa, Ill. (rein.)	.....	.....	.....	.75	.85	.95	.70	1.55	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tacoma, Wash.	.15	.17	.22½	.30	.40	.55	1.20	1.70	.....	2.00	.....	2.75	3.40	.....	6.50	.....	.....
Wahoo, Neb. (b)	.....	.....	.....	.....	1.00	1.13	1.10	1.60	.....	1.90	.....	2.25	3.40	.....	5.50	.....	.....
Yakima, Wash.	.....	.....	.....	.....	.....	.....	1.42	.....	.....	2.11	.....	2.75	3.58	4.62	6.14	6.96	7.78

(a) 24-in. lengths. (b) Reinforced. (c) Delivered on job; 5% discount, 10th of month.
†21-in. diam. ‡Price per 2-ft. length.

Edward Hely Stone Company, Cape Girardeau, Mo., Busy on Government Work

THE EDWARD HELY STONE CO., Cape Girardeau, Mo., began recently supplying the United States government with stone for rip-rap work on the Mississippi river. The company has a contract with the government and will furnish rock for this work as long as it is required, Norman L. Hely, president of the company, said.

The rock is being secured from the old quarry, which for years was known as the "blue hole," and which recently was drained Mr. Hely now has two quarry pits, the older and larger one, south of the "blue hole," being used as a source of stone for the company's regular crushed rock supply. Heretofore, Mr. Hely pointed out, the company has done only a crushed stone business, but the opening of the new pit enables the business to expand. A few men are being added to the force as they are needed, and the output of the plant will be materially increased.

Approximately 300 cu. yd. of rock can be moved daily, Mr. Hely said, and he indicated that the plant would be able to surpass that amount when proposed improvements are made at the plant. A hoist is now being installed on the east side of the quarry adjacent to Highway 61. A road has been constructed on the east side of the quarry to lead out of the pit and across the Frisco railroad tracks to the river, where government barges receive the rock. The rock will be used at different points on the river in accordance with the government's needs.—*Cape Girardeau* (Mo.) *Missourian.*

Spokane Cement Plants Operating at Half Capacity

THE International Portland Cement Co. plant at Irvin, Wash., and the Lehigh Portland Cement Co. plant at Metaline Falls, Wash., are operating at half capacity and never have operated at more than half capacity. But in spite of this fact their operation means that $700,000 or more is being turned back into circulation in Spokane and the adjacent district, through payrolls and the purchase of materials and supplies.

"The International company, of which R. K. Neill is president, buys its raw materials from Bayview on Lake Pend Oreille and from Powell Spur on the Great Northern in Stevens county," said H. M. Heleniak, sales manager of the company.

"While the capacity of our plant is 2000 bbl. a day, we operate at only one-half capacity because of an insufficient demand in this territory. In spite of this fact, though, we employ 120 men in the plant and quarries and are distributing our cement within 175 miles of Spokane, shipping an average of five carloads a day.

"We are spending approximately $300,000 a year in the purchase of power, fuel and supplies, practically all of which come from Spokane and the state of Washington. In addition to this we have an annual payroll of approximately $175,000, which turns approximately half a million dollars back into circulation in this district."

The Lehigh company operates its 2000-bbl. plant at half capacity also, turning out 1000 bbl. of cement each 24 hours. Its limestone and shale is all obtained from its quarries adjacent to its mill. The company employs 90 men in the mill and quarries, not counting the superintendent and his office force at the plant and the headquarters office force in Spokane.—*Spokane* (Wash.) *Chronicle.*

First Agstone Train for Missouri To Be Shipped in July

ALTHOUGH trains of agricultural limestone unloading directly to the farmer's property are now well-known in Iowa and in a number of other mid-western states, it is reported in the *Belton* (Mo.) *Herald* that the first complete train of agstone in the state of Missouri will be sent out on July 9. This trainload will be shipped over the Frisco lines into Cass county. The event will be celebrated by having a band accompany the train, and with speaking at the towns along the route. Decorations of alfalfa will be used on the stores in the various towns, and it is expected that the merchants will offer special sales on that day to bring larger crowds to the celebrations. The stone will be delivered both to the regular lime bins at the town and also on the right-of-way at points convenient to the farmer's property. In the latter case, each farmer will take care of unloading the stone at his own location, and the only extra cost to him for the convenience of this delivery is a charge of $8.00 per hour for the delay to the train while unloading. Freight rates for the stone will be to the next station on the line, as is usual in such distribution of stone.

New Georgia Marble Quarry Enterprise

CHATTOOGA COUNTY'S (Georgia) supply of possibly the most beautiful marble in America will be determined within the next six months by the Regal Marble Corp. All stock of the corporation has been sold and the earth is being stripped from the top of the marble bed on the farm of E. W. Sturdivant, just east of Summerville. Application for charter has been filed by Mr. Sturdivant, Wesley Shropshire, C. E. Allen and associates. The charter calls for a $15,000 capital stock, which may be increased to $100,000 if desired. The corporation is, according to Mr. Shropshire, just developing and determining the quality and quantity of the marble.

A survey was made about a year ago by state geologists. They found black, gray and pink marble, but could not ascertain the quantity. The pink marble is very rare and is much desired as an ornament in building. Several shafts were sunk to a considerable depth last fall. No flaws were encountered during the sinking of the shafts. The Regal corporation will take out slabs soon to determine whether the marble contains flaws or not.

Many samples have been taken out and sent to different places. It is reported that they brought favorable comments.

The forming of the corporation is the culmination of a move started several years ago, when it was discovered that Chattooga county contained some of the rare marbles, many samples were taken out, but no attempt was made to quarry this marble. Marble was found to be well over 100 ft. deep in some places.—*Summerville* (Ga.) *News.*

Big Southern Granite-Quarry Consolidation in the Making

MERGER of the Spartanburg Quarries Corp., Spartanburg, S. C., with the Southern Consolidated Granite Corp., a $10,000,000 concern, is nearing completion.

Through the amalgamation the plant of the Spartanburg quarries near Pacolet will be developed. Present capacity for manufacturing crushed granite will be doubled and the Keystone quarry at the western line of the property is to be developed to large capacity as a dimension stone plant.

When the organization is effected, Paul M. Allen of Spartanburg will be general manager of the Spartanburg unit and will supervise several other plants at nearby points.

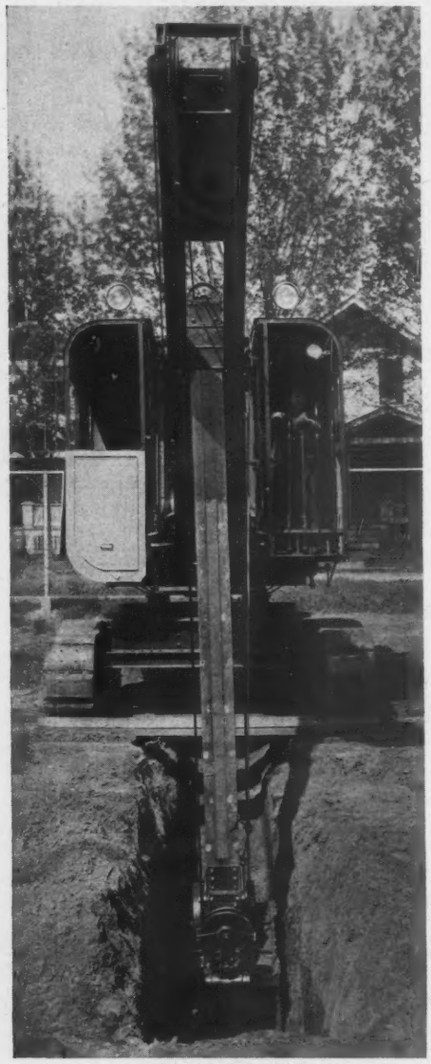
The Southern Consolidated Granite Corp. was chartered recently in Delaware for the purpose of amalgamating some 25 or more quarries strategically situated in the states of Virginia, North Carolina, South Carolina and Georgia. Under one management, the plants are expected to be operated more economically and efficiently.

Option has been procured on the Pacolet plant and other properties proposed for inclusion, it was learned from an authoritative source.

The supply of granite in the property quarried by the Spartanburg Granite Corp. is said to be almost inexhaustible. A recent survey showed that between the surface of the ground and a depth of 75 ft., 56,628,000 tons are available. Indications are that the deposits extend down 500 ft. instead of 75 ft., at which level two openings on the plant are now being mined.

Present officers are Robert A. Cooper, former governor of South Carolina and member of the federal farm loan board, chairman of the board of directors; John M. Crewer, president of the Citizens National Bank, president; and Ey. O. Frierson, secretary and treasurer of the Spartanburg Quarries, vice-president.—*Spartanburg* (S. C.) *Herald.*

New Machinery and Equipment



New 1/2-yd. excavator demonstrating a new use as a trencher

New ½-yd. Convertible Excavator

THE Speeder Machinery Corp. of Cedar Rapids, Iowa, has recently introduced a new model ½-yd., fully-convertible, full-revolving gasoline and electric excavator. In this new model, known as the B-2, a special feature is the new reversible jawed clutch assembly used in place of the sliding gear found on former models. It is claimed that the new assembly retains the desirable features of the sliding gear and has the added advantages of positive mesh of the gears at all times, and of making all vertical shafts removable. A Hercules "Model OX" engine is standard equipment on the new excavators. The new model has also been improved by the use of heavier double tread sprockets and a larger and heavier turntable. Electric lights and starter are standard equipment, and all the controls are conveniently arranged so they can be easily reached from the driver's seat.

Direct Diesel Drive for Turbine Pumps

A NEW Fairbanks-Morse Co. development is the adaptation of the new line of higher speed, lighter weight F-M Diesel engines for direct connection to turbine pumps.

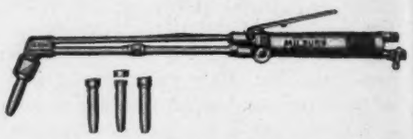
The gear unit which has been developed consists of a cast iron housing in which are located two bevel gear shafts each of which carries a bevel gear to give the proper speed ratios. These bevel gears run in oil. The bevel gear shafts are mounted in ball bearings and the vertical shaft which drives the pump is a hollow shaft of identical construction to that used on the line of UJL motors. In other words, the gear unit is interchangeable with the Fairbanks-Morse line of vertical motors for this service, making it possible at any time to go from motor drive to engine drive if desired.

The gear ratios are such that the selection of a pump speed must agree with the speed of squirrel cage motors for this service. For instance, if the pumping characteristics require a pump of 1200 r.p.m., then the gear ratios of the drive would be selected so that an engine speed of 800 r.p.m. would give 1200 r.p.m. on the pump.

The accompanying illustration shows a 60 hp. F-M Diesel which operates at 800 r.p.m., direct connected to a speed increaser unit which is so designed that by changing the gear ratios it is possible to drive the pump at a speed of 900, 1000, 1200, 1500 or 1800 r.p.m., depending on the particular design of pump which is used.

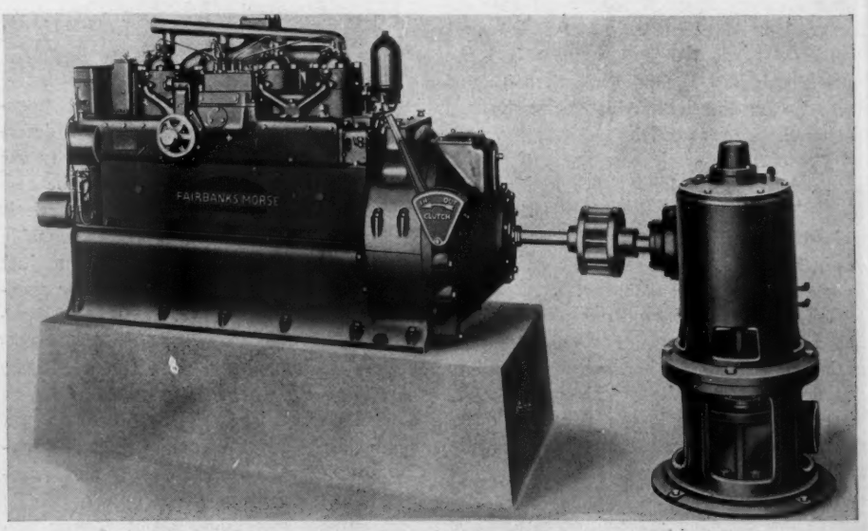
Combination Cutting and Welding Torch

THE Alexander Milburn Co., of Baltimore, Md., has recently announced a new combination cutting and welding torch in which it is not even necessary to change the tip when changing from cutting to welding. A convertible feature of the tip makes the change automatically. In one position the

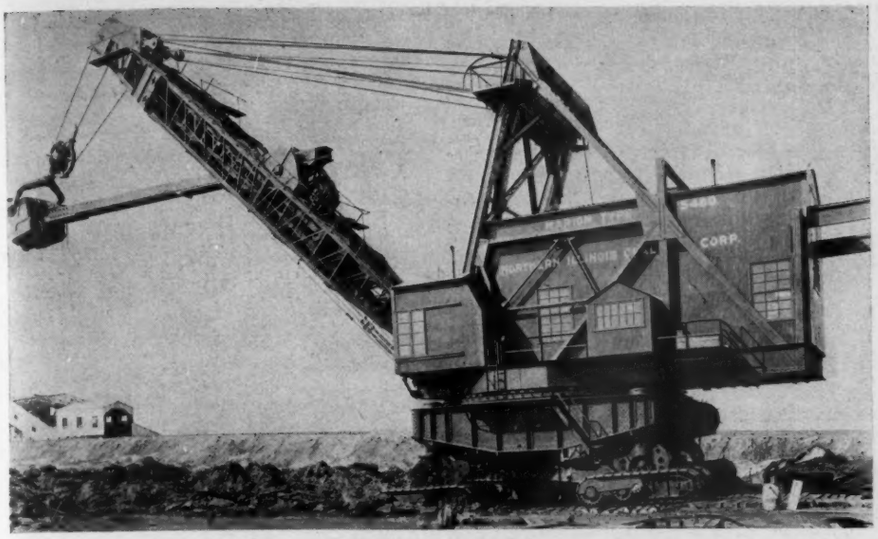


Combination cutting and welding tool

gases are automatically passed through the preheating gas passages while the high pressure oxygen is carried through the central hole for cutting. In the next position, made by a quarter turn of the tip, the cutting oxygen is cut off and the welding gases are conveyed through the central passage of the cutting tip, making a correct welding flame. The company claims this new torch, which is known as "Type T1," has all the features of the former torches and embodies the new principle as well. The well-known lightness and durability are to be found, the principle of super-mixing is retained, and as in the former torches, flashback is eliminated even when the torch is inserted in molten metal, it is claimed.



Direct Diesel drive for turbine pumps



The world's largest shovel, which was recently dedicated

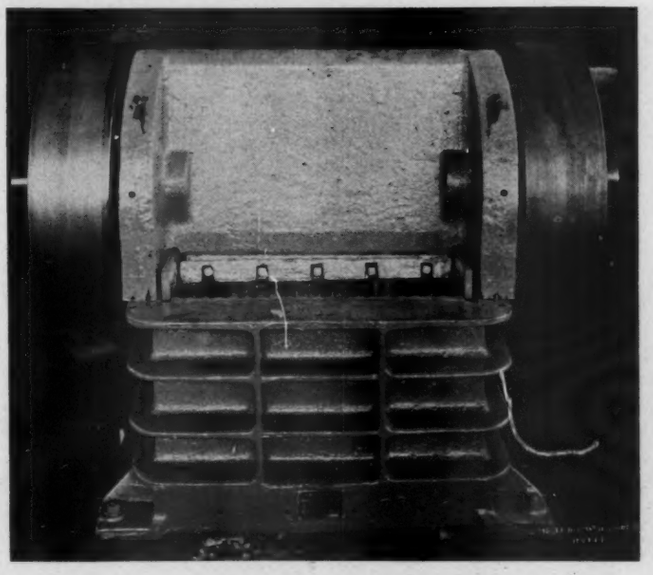
Largest Shovel Placed in Operation

THE Marion Steam Shovel Co. of Marion, Ohio, has recently completed a new shovel which is claimed to be the largest ever built. This new "Type 5480" has a 12-yd. dipper and a 90-ft. boom with a 60-ft. dipper handle. It is now in use for stripping at the plant of the Northern Illinois Coal Corp., near Wilmington, Ill., where a formal opening for the big shovel was held on May 22. The shovel is mounted on crawling traction trucks, and has a working weight, with ballast, of approximately 850 tons. It is electrically operated, with a 750-hp. motor for driving the motor generator set to furnish power for the various motions.

Four Crawler Wheel Drill

LOOMIS MACHINE CO., Tiffin, Ohio, has recently announced a new gasoline four crawler wheel blast hole drill. The new drill is known as the "Loomis Clipper." This drill has been made for steady, continuous use, the manufacturers say. Although it is essentially manufactured to drill shallow depths with good speed for blast hole work, it has also been used successfully in well-drill work, it is claimed. The manufacturers claim that the drill will do a lot of drilling in a short time and with a minimum of expense. when properly operated.

The four crawler wheels are made especially for work on extra soft ground where other types might be held up in moving. The crawler wheels are developed to distribute the weight over a considerable area, thus preventing the wheels from "digging in" when power is applied. The rear wheels are for driving and the front wheels are idlers. The drill is mounted with a heavy motor that will take care of the moving process.

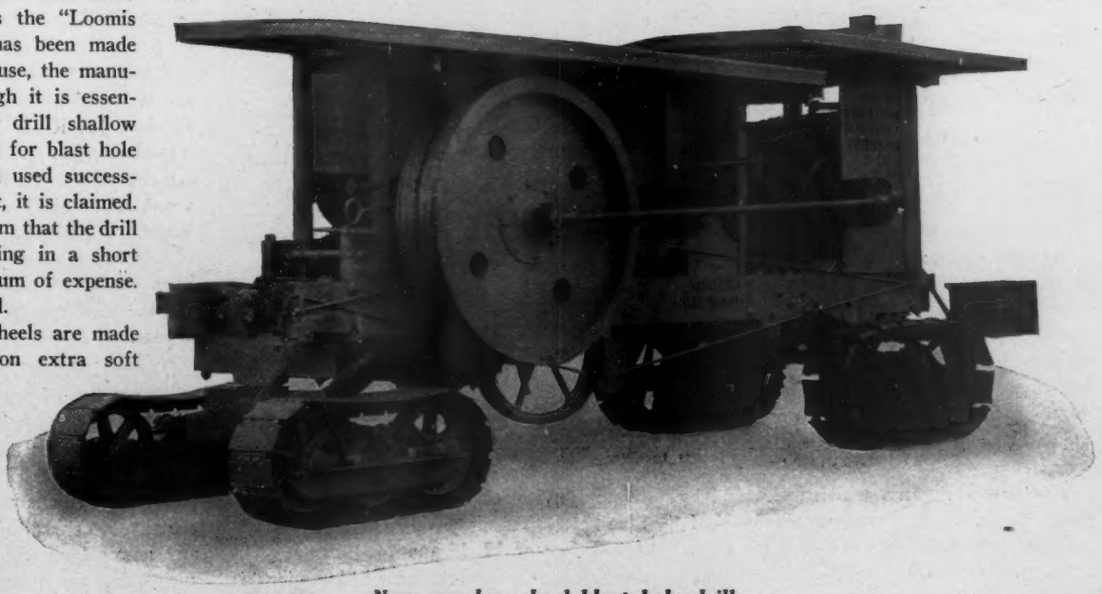


New roller bearing jaw crusher

New Roller Bearing Jaw Crusher

THE Wheeling Mold and Foundry Co., Wheeling, W. Va., are now marketing a new roller bearing jaw crusher, after having spent considerable time in experimenting on the crusher. Both pitman and main frame bearings are equipped with roller bearings which are claimed to be both dustproof and fool-proof. The frame of the new crusher is a one-piece steel casting, and the jaws are of manganese steel, the same as have been employed on Wheeling crushers in the past. The shaft is of nickel alloy steel. All parts are interchangeable.

The company claims exceptionally low power consumption and ease of operation with the new crushers. It is stated that factory tests on hard granite and slag through a 9x36-in. crusher with the hopper fully loaded showed less than 19-hp. consumption, whereas a sleeeve bearing crusher of this size would use a 35-hp. motor. The company claims tests showing that granite boulders could actually be crushed by turning the flywheel by hand. It is also stated that the new bearings make the crusher exceptionally free of vibration.



New crawler wheel blast hole drill

New Gravel Plant at Medford, Minn.

THE KLEMMER CONSTRUCTION CO., Owatonna, Minn., has completed stripping the new gravel pit north of Medford which the Owatonna Cement Tile Co. of this city purchased recently. The new pit consists of 13 acres purchased of Andrew Shaw and 25 acres adjoining, bought of C. H. Husman.

The Klemmer Construction Co. in stripping moved the dirt and made a fill for a siding which the Chicago, Milwaukee & St. Paul railway will build to take gravel, which it may purchase for their own right-of-way, and to carry to others purchasing washed gravel for concrete and road work.

After uncovering the big pit, the Klemmer Construction Co. used their large dragline and excavated several thousand yards of gravel, which has been piled in convenient spots for handling through the new gravel washer, screener and loader which the Owatonna Cement Tile Co. has erected at the pit. This new gravel plant is operated by electric power.

With the purchase of the large gravel pit at Medford, the Owatonna Cement Tile Co. has secured an abundance of gravel which will insure operation for the plants here for some time to come. Since the establishment of the business, the Owatonna Cement Tile Co. has been mining gravel from adjacent pits and they have practically used all of the available supply from their pits here. The gravel in the new pit is of uniform run, excellent quality, free from slate, and is of unknown depth, running down as far as it has been possible to dig test wells before the purchase was made.

The gravel from the pit of the Owatonna Cement Tile Co. will be brought to Owatonna by a fleet of trucks. Truck delivery at the plant and to purchasers will be made. At the present time the requirements at the tile plant are over 300 yd. daily.—*Owatonna* (Minn.) *People's Press.*

New Jersey Sand and Gravel Company Buys Another Plant

THE WARREN SAND AND GRAVEL CO., which occupies 203 acres and a mile of river front along the Delaware at Carpenterville, N. J., has been sold to a group of men who through the New Jersey Sand and Gravel Co. of Spring Lake, N. J., own four of the largest plants in New Jersey. The new corporation has already made an initial payment on the Carpenterville plant and will take it over for operation about August.

The new company, which is headed by J. Claude English of Asbury Park, N. J., and ex-Senator Geran, of Red Bank, N. J., plans to increase the output of the plant to make it one of the largest in the east. The capacity of the plant is at the present time 20 cars a day but will be increased to 50.

The Warren Sand and Gravel Co. was incorporated in 1911 and has conducted the business successfully since that time. The officers of the Warren company are: William J. Kressler, president and general manager; W. A. Stotz, vice-president; Kenneth F. Kressler, treasurer, and Herman D. Wolff, secretary. All are from Easton, Penn. Their business was conducted from an office in the Easton Trust Co. building.—*Allentown* (Penn.) *Call.*

Tennessee Coal and Iron Co.'s New Flux-Stone Plant

THE RAILROAD BEING constructed by the Tennessee Coal and Iron Co. to connect with new limestone plant at Dolonah, Ala., with the Birmingham-Southern railroad at Bessemer will be completed about July 1, it is stated, and the plant will probably be put into operation July 15.

The railway line is about five miles in length, being built from the plant at Old Jonesboro to connect with the B. S. R. R. to the north of Bessemer. The steel rails have been laid from the plant as far as 19th St., Birmingham, Ala., and the remainder of the right of way has been cleared and heavy crossties are being laid preparatory to the placing of the rails.

A number of bridges have been constructed in the building of the road. At the same time work at the new plant is progressing. Buildings to house the machinery have been constructed and warehouses have been built. Much of the machinery has been installed and the crushers for the rock will be installed in June. Excavations have been made to mine the limestone rock, which is in immense quantities in that location. About 240 men are employed in the construction work at the plant.

The company has constructed 13 homes for the white employes and a large number for the negro workers.

Dolonah is located at Old Jonesboro, the oldest settlement of the Bessemer district, which is about two miles from the city. The plant will cost about $800,000 when com pleted, it is said, and will employ a large number of men. Work at the plant has been under way for about one year. An almost unlimited supply of limestone is located on the Old Jonesboro site, it is said.—*Birmingham* (Ala.) *News.*

Concrete Institute to Hold 1929 Convention at Detroit

THE 25TH ANNUAL CONVENTION of the American Concrete Institute will be held in Detroit (headquarters Book-Cadillac hotel), Tuesday, Wednesday and Thursday, February 12, 13 and 14, 1929. A technical program of eight technical sessions is already under way.

Santa Monica (California) Cement Project Is Abandoned

AS A RESULT of the overwhelming protest against the proposed cement plant, rock crusher and other industries in the western residential-educational district, Alphonzo E. Bell, president of the Los Angeles Mountain Park Co., which asked for the industrial zoning permits, recently withdrew the application. His letter of withdrawal was filed with the city council on the eve of the hearing scheduled at the City Hall before the City Council's City Planning Committee.

President Bell in his letter contends that the objections to the industrial plants are based upon misunderstanding as to the noiseless and odorless character of the industries.

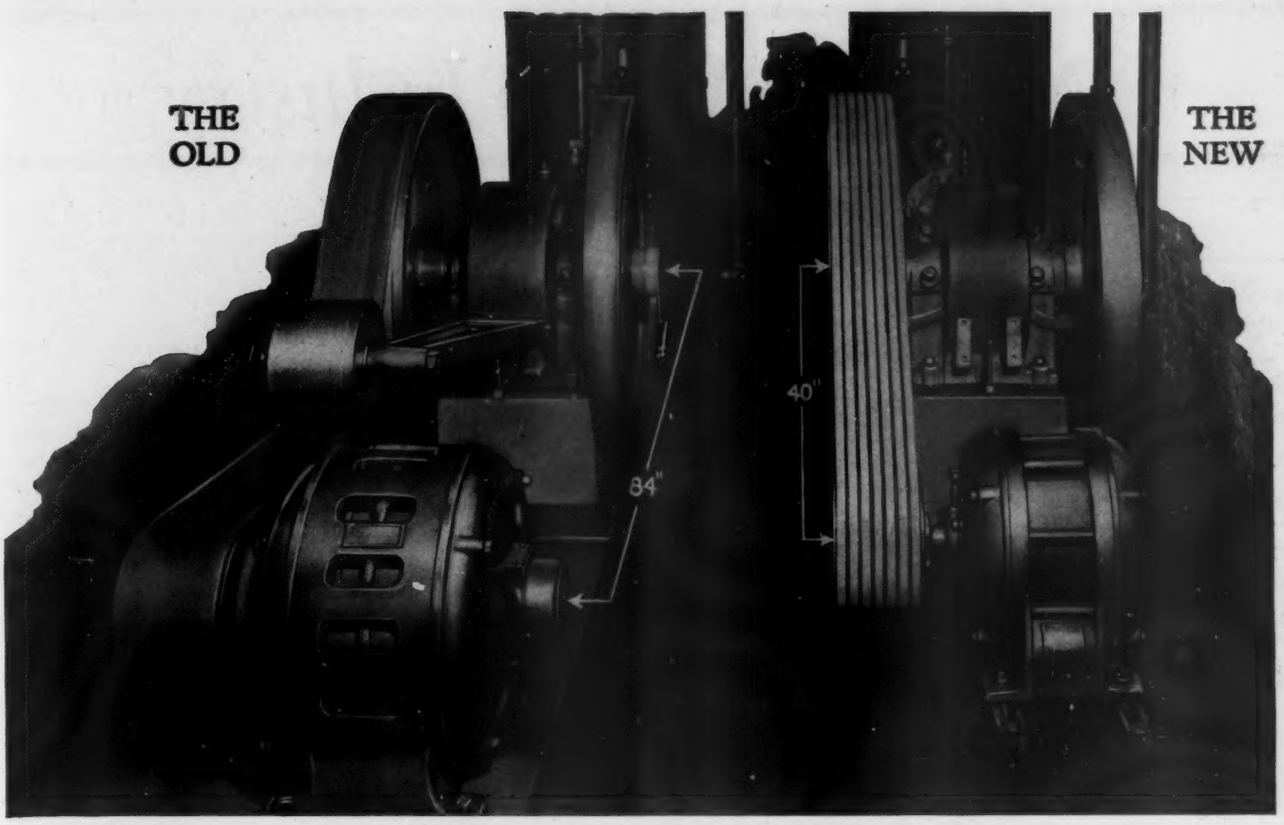
Mr. Bell asserts that the plants would not be objectionable or detrimental to the district. He says that it has been and always will be the company's policy to protect residents of the district from Bel-Air to the sea from any operations which would be in the least objectionable or detrimental.

Despite the withdrawal of the industrial zoning application, the protestants, headed by the Pacific Palisades Protective Committee, announced that they would appear at the scheduled hearing at the City Hall and make their objections a part of the official records. They were to file the large property owners' protest which has been signed by several hundred owners, in addition to the hundreds of protests which already have been filed at the City Hall. They said that they will do this for protection against any future attempts to put through the industrial zoning. —*Los Angeles* (Calif.) *Times.*

Alabama Oolitic Stone Co. Organized

THE Alabama Oolitic Stone Co. was incorporated on May 26 at Nashville, Tenn., to quarry and finish limestone and marble and to manufacture lime. The incorporators are W. F. Creighton, A. D. Creighton, J. S. Dunbar, Jr., R. B. Dunbar and George H. Armistead, Jr., all of Nashville. The company has acquired a 160-acre quarry at Rockwood, Ala. The quarry is being cleared off, Wilbur Creighton announced, and two miles of track have already been laid. Production is expected to begin within 60 days, he said, and the plant will be in full operation within a year.

The capital stock of the company consists of 250 shares of preferred stock with a par value of $100, each bearing cumulative dividends at 7% per annum, payable annually, redeemable at $105 and accumulated dividends on any interest bearing date. There are also 500 shares of common stock without any nominal or par value to be issued in such quantities as directed by the board of directors from time to time.



Less Space— Lower Losses— Less Maintenance

Duplicate Compressors, operating at same capacity and pressure.

THE NEW UNIT EMPLOYING TEXROPE ELIMINATES THE IDLER.

The 40" pulley centers on the new unit is less than one-half of this dimension on the flat belt driven unit.

The short belt centers made possible by Texrope Drive and the compactness of the Allis-Chalmers motor with Timken Bearings result in a big saving in floor space.

The Texrope requires no lubrication; dust does not affect it. The motor is made largely of steel—indestructible rotor—extra sealed insulation—grease packed bearings which require attention only a few times yearly. These features reduce maintenance to a negligible item.

ALLIS-CHALMERS MANUFACTURING CO.
MILWAUKEE
District Offices in Principal Cities

ALLIS-CHALMERS MOTORS *and* TEXROPE DRIVE

A Combination Unequalled!

News of All the Industry

Incorporations

Gwynns Falls Stone Corp., Towson, Md. Bruce S. Campbell.

Grant Sand and Gravel Co., Inc., Pollock, La. J. A. Cook and H. M. Price.

Tellyer Concrete Pipe Co., Dallas, Tex., $50,000. H. B. Tellyer, C. L. Briggs.

Webb City and Joplin Sand and Gravel Co., Webb City, Mo. J. C. Wilbur.

New Stone Art & Pottery Co., Ft. Pierce, Fla. O. T. Munson and J. Glenn Lee.

North Jersey Aerocrete Corp., Newark, N. J., 10,000 shares common; building materials.

Tilt Rock Products Corp., Manhattan, N. Y., $10,000; cement and gypsum. G. Hoerner.

Consumers Rock and Gravel Co., Inc., Wilmington, Del., $1,000,000, 150,000 shares, no par value.

A. B. C. Concrete Brick and Block Co., Ashland, N. J., $125,000; concrete products. Charles W. Letzgus, Camden, N. J.

Detroit Lakes Concrete Works, Detroit Lakes, Minn., $50,000. E. J. Grimes, Minneapolis, and H. Dellum, Detroit Lakes.

Camden Gravel Co., Camden, S. C., $35,000; excavate and sell sand and gravel. J. B. Zemp, J. P. Wilson and T. K. Trotter.

Hollis Sand and Gravel Co., Memphis, Tenn., $12,000. W. J. McDaniel, J. S. Allen, W. D. Kyser, C. H. Carr and W. E. Krafft.

American Neolith Corp., Newark, N. J., $100,000; artificial stone. R. Ross and E. Ross of New York; J. Prial, Rutherford; L. Neumann, Brooklyn.

Alabama Oolitic Stone Co., Nashville, Tenn., $25,000. W. F. Creighton, A. D. Creighton, J. S. Dunbar, Jr., R. B. Dunbar and G. H. Armistead, Jr.

Builders Sand and Gravel Co., Wheeling, W. Va., $25,000; deal in sand and gravel. C. A. Garden, E. Renant, H. D. Matthews, E. Morrell and J. Flading.

Goldbond Products Corp., Buffalo, N. Y., 200 shares, no par value; lime, cement, chalk, clay, whiting, plasters. P. F. Kleasons, E. E. Finck and N. A. Jerge.

Baker Gravel and Sand Co., Mobile, Ala., $25,000; general sand and gravel business. J. C. Murphy, C. C. Baker, A. T. Baugh, Jr., A. M. Murphy and H. J. Murphy.

Quarries

Avery and Co., Adams, Ind., are moving their quarry operations from Adams to Clarksburg, Ind.

Vermont Marble Co. is developing a marble quarry at Townsend, Broadwater county, Mont.

Camp Concrete Rock Products Co., Brooksville, Fla., has been placed in operation again after being shut down for some time.

C. F. Nagel, La Grange, Mo., has been awarded a contract to furnish rip rap for government river work and has begun operations at the Oyster quarry, just south of La Grange.

Georgia Granite Co. is the name of a new enterprise established at Elberton, Ga., by Walter Smith and Frank Bailey, for crushing stone for highways and general commercial uses.

Julian Miller, Castalia, Ohio, has leased five farms in the western part of Erie county, Ohio, and will soon begin the quarrying of tufa stone, locally known as "prairie" stone, which is said to have much merit for certain uses in architectural and landscape gardening.

Grindstone City, Mich. An industry which is fast declining in other parts of the county is still being worked at Grindstone City, so named because of the grindstone deposits found here. Visitors here may see the great stones being removed from the earth and also inspect the quarries. The supply of stone here is said to be almost limitless.

John Evans Lime and Stone Co., Marion, Ohio, made a shot of 7½ tons of dynamite at its quarry on June 11. Daniel Evans estimated that the blasting, which lasted about four seconds, cost in the neighborhood of $4,000. Of this amount, he said $2,400 goes for dynamite, about $400 for fuse and about $1,200 for labor and work of drilling. The blasted stone extended about 410 ft. in length and about 40 ft. in depth. Motion and still pictures of the explosion were taken by Adam Bauer, local photographer.

Universal Granite Quarries Co., Redgranite, Wis., is installing a new Ingersoll-Rand 140-hp. oil-engine driven, air-compressor unit; the compressor has a capacity of 900 cu. ft. per min. The Universal company is also rebuilding its compressed-air line, replacing the old equipment with 8-, 6- and 5-in. lines with 8-in. pipe connections on all storage tanks. The various improvements reflect absolute confidence on the part of the Universal management in the future prosperity of the quarry industry, says a local press dispatch.

McCauliff Quarry Co., Fitchburg, Mass. Heirs of Ephraim Kimball have, by five deeds, transferred to Timothy R. Shea, treasurer of the McCauliff Quarry Co., all the quarry lands on the easterly side of Rollstone hill, some 39 acres in all. This property had remained in one family and its descendants for a century or thereabouts. The transaction means that for the first time since granite quarrying has been carried on there, the entire available granite supply at Rollstone is in the hands of a single concern. In years past there had been at one and the same time some half dozen independent operators working there. On the westerly side the large Litchfield quarries were absorbed by the McCauliff company some years ago, and the original McCauliff quarry location, so long operated by the late F. A. McCauliff, was owned by the Crocker family at one time. Years ago, the quarry lands now taken over by Timothy R. Shea for the concern of which he is treasurer, were operated by his father, the late Jeremiah Shea. At present there is greater activity on Rollstone hill in the granite quarrying and cutting industry than this city ever before saw, even at the height of business by the numerous concerns which had at times operated there before the day when reinforced concrete made such heavy inroads into the field of granite. Today the city's most picturesque and historical landmark is the scene of one of the city's biggest payroll industries.

Sand and Gravel

Roy More, Junction City, Kan., is erecting a sand and gravel dredge, electrically driven.

Cass County, N. D., has purchased a gravel pit in Pontiac township for local road improvement.

Oregon City Sand and Gravel Co., Fairfield, Ore., has recently completed its new plant and begun production.

Ohio Gravel Ballast Co., Cincinnati, Ohio, has been authorized to change its name to the **Ohio Red Banks Gravel Co.**

Consumers Sand Co., Topeka, Kan. I. V. Gray, one of the directors of the company, is commuting between his home in Tulsa, Okla., and the company headquarters at Topeka by airplane.

Blue River Sand and Gravel Co., Marysville, Ky., is again in production. The company's oil-engine driven dredge was recently destroyed by fire. An electric-operated pump has been installed in the new dredge.

Broome County Sand and Gravel Corp., Binghamton, N. Y., a new organization, has taken over the property of the bankrupt Stewart Sand and Gravel Co., the foreclosure sale of which was noted in ROCK PRODUCTS, June 9.

A. C. McLellan has let a contract to the United Commercial Co. of San Francisco, Calif., to build a 400-ft. spur track into a gravel bed situated between Felton and Olympia, Calif. Herman Taylor, of Aptos is to receive the contract to do the grading. Mr. McLellan proposes to operate on a large scale, shipping in carload lots and supplying the market by truck. Bunkers and other buildings will be built at the pits at once.

Union Rock Co., Los Angeles, Calif., recently entertained 8000 visitors at its annual barbecue and entertainment at the Baldwin Park plant. In addition to employes of the company, mayors of surrounding towns, county supervisors, contractors and many others were present. A barbecue lunch was served, followed by a general entertainment, to which several boxing bouts added zest. The occasion saw all the officers of the rock company present, including G. A. Rogers, president; L. L. Rogers, vice-president; Harry Lee Martin, vice-president; T. C. Rogers, treasurer, and W. J. Van Valkenburgh, general sales manager.

Maribel Gravel Co., Oconto, Wis., has recently purchased the old Hart's gravel pit situated just south of the county line. A large force of men has been employed on the installation of machinery at the plant for about six weeks under the supervision of W. W. Bruss, manager. All the machinery is electrically driven and the electric service will be supplied by the Wisconsin Public Service Corp. connecting with a two-mile extension recently installed, from the Oconto-Peshtigo transmission line. About 125 hp. will be used to start with and will ultimately be increased to 175 hp. The plant will first supply the Schuster Construction Co. with material, which is already engaged in constructing the concrete on S. T. H. 41 from the county line north to Baby's Corners.

Cement

Monolith Portland Midwest Co., Laramie, Wyo., is reported nearly ready for production.

Alpha Portland Cement Co., Manheim, W. Va., is constructing a gypsum conveying system.

Oregon Portland Cement Co., Portland, Ore., is building a 3-story and basement storage and distributing plant, 100x100 ft.

North Dakota State Cement Plant, Rapid City, S. D.; total sales for May amounted to nearly $150,000, the largest for any one month in the history of the plant.

Atlas Portland Cement Co., of Kansas, at a meeting at Independence, Kan., June 7, re-elected present officers. Clarence Steward, of Independence, was added to the board of directors.

Virginia Portland Cement Co., Norfolk, Va., a subsidiary of the International Cement Corp., is included in the 39 new industries filmed for exhibition purposes by local chamber of commerce.

International Portland Cement Co., Colville, Wash., expects to celebrate July 4 with the biggest blast yet shot at its quarry at Powell, Wash. From 18 to 20 well drill holes will be shot; 40% nitroglycerine dynamite will be used.

Keystone Portland Cement Co. The principal office is at Bath, Penn., not Allentown, Penn., as noted in ROCK PRODUCTS, June 9. The company also has sales offices at 350 Madison Ave., New York City, and 1600 Arch St., Philadelphia, Penn.

Pacific Coast Cement Co., Seattle, Wash., recently held a prize contest to name two steamships which are to bring limestone from Alaska quarries and carry cement back. Dr. E. W. Pruett, a local man, won first prize—a round trip to Alaska. The name chosen was "Diamond Cement."

Pennsylvania-Dixie Cement Corp., Plant 2, Clinchfield, Ga., entertained 450 county commissioners, district commissioners, clerks, wardens, deputies, engineers and state highway officials at an old-fashioned Georgia barbecue on May 17. Over 1500 lb. of beef and pork were required for the occasion.

Cement Products

Western Concrete Pipe Co., Tacoma, Wash., has begun construction of an addition to its plant to cost about $2500.

Cement Block and Tile Co., La Mesa, Calif., which recently commenced operations, has found it necessary to enlarge its facilities.

Federal Floor Tile Co., Pengilly, Minn., has commenced the manufacture of cement floor tile using a high quality silica sand from deposits controlled by the company.

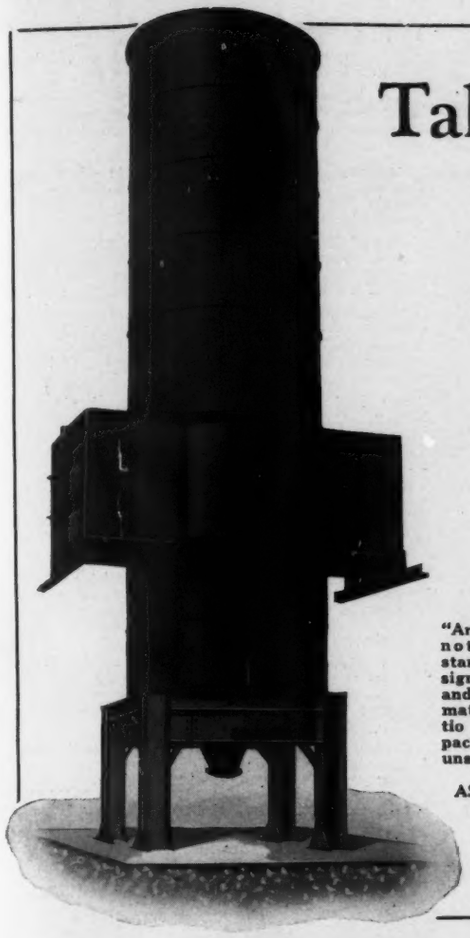
Marion Works, manufacturer of concrete block at Edna, Kans., is reported to be about to establish a similar plant at Oswego, Kans. H. Long will have charge of the new plant.

Elkan Stone Tile Co., Macon, Ga., is now manufacturing ornamental cast stone pieces for building trim. The company has also started a line of ornamental cast stone benches, urns and similar pieces.

Concrete Products, Ltd., Vancouver, B. C., suffered a damage of $4000 when the plant was broken into and considerable of the machinery damaged. This is the sixth time that this company has sustained such a loss.

Willard Concrete Products Co., Norwalk, Conn., have recently completed their plant for the manufacture of various types of cement blocks and started business. For the present the plant will employ about 12 men.

Dixie Cement Co., Richmond, Va., is to start the manufacture of concrete staves for silos and bins at its new plant, according to J. D. Hindle,



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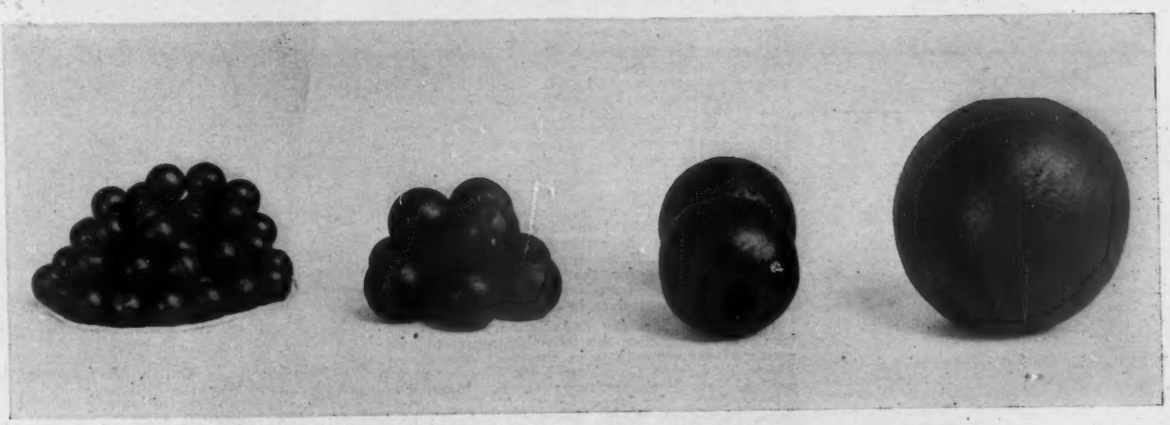

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manager. The plant will turn out 450 staves a day at first, it is announced.

William C. Hirscher, Findlay, Ohio, manufacturer of cement blocks, exhibited his products, consisting principally of ornamental garden furniture and cement and chimney blocks, at the Manufacturers' and Distributors' Exhibition, held recently at Findlay, Ohio.

Lime

Pueblo Lime Co., Pueblo, Colo., suffered damage to the extent of about $1000 from a fire on May 31.

Nast Lime and Stone Co., Fond du Lac, Wis., is rapidly completing its new plant at Eden, Wis., and expects to be in production August 1.

Eastern Lime Co., Ltd., Windsor, N. S., Canada, has recently completed the installation of a hydrated-lime plant, including a Clyde hydrator, Raymond mill and separator. The plant is designed to produce not only ordinary mason's hydrate but a very fine chemical hydrate for insecticides and fungicides.

Agricultural Limestone

Missouri—Special agricultural limestone trains, like those already described in ROCK PRODUCTS, which deliver the material in carload lots on the railway right-of-way adjacent to farmers' fields, are the ordinary thing now in Missouri. The Missouri Pacific railway is handling trains in this way with as few as 12 cars. The price delivered to the farm is said to average about $2 per ton. One such train is claimed to have saved the farmers 1750 ton-miles. Special "limestone days" with brass bands, orators, etc., are helping develop a constantly larger demand for "agstone." In some instances local bankers are financing the construction of bins for distributing the material.

Gypsum

United States Gypsum Co., Chicago, sustained a damage estimated at $10,000 at its plaster mill near Loveland, Colo., when an irrigation ditch broke and partially flooded the property.

Best Bros. Keene's Cement Co., Medicine Lodge, Kan., has awarded a contract to the Stevens Engineering and Construction Co., St. Louis, Mo., for a new manufacturing unit. The new structure will be erected just east of and adjoining the kiln plant. It will consist of a mill building and a track hopper installation for the unloading of rock. It will be built entirely of reinforced concrete and, exclusive of the track hopper, will occupy a space 80x100 ft. and will be 30 ft. high.

Personals

J. E. Zahn, secretary and sales manager of the United States Portland Cement Co., Denver, Colo., has been chosen president of the Denver Rotary Club.

Jeffery Coles, representing the Edgar Allen Steel Co., Sheffield, England, was a recent visitor at the Laurence Portland Cement Co.'s new plant at Thomaston, Me.

Arthur J. Sechrist, recently superintendent of the Basic Refractories Corp. plant at Natural Bridge, N. Y., has been appointed superintendent of the corporation's plant at Belmar, Penn., one of the largest operated by the corporation.

R. K. Neill, president of the International Portland Cement Co., Spokane, Wash., is a member of the board of governors of the National Discount Co., one of the largest financial institutions ever incorporated in the state of Washington.

Obituaries

James Reid, president of the Standard Granite Co., Denver, died on June 1. He was 61 years old.

T. A. Kerr, well known in the crushed-stone industry of northern Illinois, formerly with the Dolese and Shepard Co., Chicago, Ill., died June 10 at his home in Kankakee, Ill.

Henry Chapman, general manager of the Chapman Slate Co., Bethlehem, Penn., died May 21, 1928. Mr. Chapman was a native of Virginia and a pioneer in the slate industry.

Sanford B. Belden, vice-president of the Jeffrey Manufacturing Co., Columbus, Ohio, died suddenly in New York City, May 15, where he had gone on a business trip. Mr. Belden became associated with the Jeffrey Manufacturing Co. in 1896, shortly after his graduation from Ohio State University.

Manufacturers

Joseph Dixon Crucible Co., Jersey City, N. J., announce the removal of their Chicago sales office to the Builders' Bldg., Chicago.

Smith Engineering Works, Milwaukee, Wis., announce the removal of their offices from the Old Colony Bldg. to the Builders' Bldg.

Merco Nordstrom Valve Co., San Francisco, Calif., announces the placing of Roger Bowman in charge of the Cleveland, Ohio, office.

H. K. Ferguson Co., Cleveland, Ohio, recently announced that they have adopted a policy of guaranteeing buildings for five years after date of completion.

Botfield Refractories Co., Philadelphia, Penn., announce the appointment of the Builders and Industrial Supply Co., Toledo, Ohio, as their representative in the Toledo territory.

Oliver Machinery Co., Grand Rapids, Mich., announce that they have taken over the business of Butterworth and Lowe, Grand Rapids, manufacturers of jaw and rotary crushers.

Combustion Engineering Corp., New York City, announce the appointment of James Cleary as general sales manager. Mr. Cleary has been associated with the company since 1921.

Ashland Division of the American Rolling Mill Co. have recently ordered three 300-hp. oil-electric locomotives to be built jointly by the Ingersoll-Rand Co., General Electric Co., and American Locomotive Co.

Dry Quenching Equipment Corp., subsidiary of the International Combustion Engineering Corp., New York City, announce the election of D. W. Wilson as vice-president and general manager of the corporation.

Northern Engineering Works, Detroit, Mich., has recently appointed the Interstate Supply Co. of Philadelphia as its representative in the Philadelphia district for its line of cranes and hoists. W. H. Beyer of the Interstate company will be in direct charge of the account.

E. I. Du Pont de Nemours and Co., Wilmington, Del., announce that in recognition of 43 years of service, Joseph Lang, representing the du Pont company in the New York City territory, will be relieved of such duties as he may desire to relinquish, by R. H. Nicol, a senior representative of the company.

General Refractories Co., Philadelphia, Penn., announce the appointment of R. P. Heuer as director of research for the company with offices at Philadelphia. Dr. Heuer, who was formerly an instructor in chemical engineering at the University of Pennsylvania, will devote considerable of his time to technical problems in the field.

Construction Machinery Co., Waterloo, Iowa, and the **Marsh-Capron Co.,** Chicago, Ill., merger was recently announced by H. B. Lichty, president of the Construction Machinery Co. The amalgamation of the two organizations, it is stated, has been effected for the purpose of bringing about the economies of common management rather than the elimination of either organization.

Mundy Sales Corp., New York City, has announced the appointment of the E. F. Craven Co., Greensboro, N. C., as representatives in eastern North Carolina; the Lone Star Road Machinery Co., Dallas, Tex., as representatives in northeastern Texas; the R. P. Sweeny Co., Greenville, S. C., as representatives for the entire state of South Carolina, and the Nixon-Hasselle Co., Chattanooga, Tenn., as representatives in eastern Tennessee.

Hill Clutch Machine and Foundry Co., Cleveland, Ohio, announce the following recent appointments of representatives in the sales department: James T. Gordon Co., New York City for metropolitan New York territory; L. F. Dolan, Dorchester, Mass., for Massachusets; T. L. Rose and Sons, Pittsburgh, Penn., for the Pittsburgh territory; A. E. Woolam, Kalamazoo, Mich., for southern Michigan; and McNeal Machinery Co., Joplin, Mo., for Kansas, Missouri and Oklahoma.

Trade Literature

NOTICE—Any publication mentioned under this heading will be sent free unless otherwise noted, to readers, on request to the firm issuing the publication. When writing for any of the items kindly mention ROCK PRODUCTS.

Railway and Industrial Equipment. Illustrated catalog of rebuilt locomotives and car equipment. SOUTHERN IRON AND EQUIPMENT CO., Atlanta Ga.

Slurry Agitator. Illustrated bulletin of the "Venturex" slurry agitator for use in cement mill installation and similar operations. SMITH AND SMITH, Lakewood, Ohio.

Heavy Duty Electric Shovels. Two illustrated bulletins describing Types 4160 and 490 heavy duty electric revolving shovels. MARION STEAM SHOVEL CO., Marion, Ohio.

Cranes and Railroad Equipment. A new Bulleton No. 363 of new and reconditioned cranes, shovels, engines and various types of railroad equipment. ZELNICKER, St. Louis, Mo.

Insuring Dependable Properties in Grey Iron Castings. Bulletin on the use of nickel in iron casting to improve machinability. INTERNATIONAL NICKEL CO., New York, N. Y.

Use of Celite in Concrete, Bulletin 337. A specification sheet for Celite including a discussion of the water-cement ratio as applied to Celite mixes. CELITE PRODUCTS CO., Los Angeles, Calif.

Adjustable Bag Holders. Car Movers. Illustrated announcement of holders for bags. Illustrated announcement of compound lever and other types of car movers. WEBSTER MFG. CO., Chicago, Ill.

Air Preheaters. 24-page catalog of air preheaters, illustrated with photographs and drawings, including charts of typical performances. COMBUSTION ENGINEERING CORP., New York, N. Y.

Announcing the Conical Ball Mill Unit Pulverizer. Illustrated bulletin on the new unit pulverizer. **More Grinding Capacity.** Illustrated bulletin also on the conical ball mill. HARDINGE CO., York, Penn.

Announcing the New Reeves Variable Speed Transmission. A booklet and an illustrated bulletin announcing the production of a new design variable speed transmission. REEVES PULLEY CO., Columbus, Ind.

The Story of Combustion. A reprint from **World's Work,** illustrated with views of outstanding power plants and installations. INTERNATIONAL COMBUSTION ENGINEERING CORP., New York, N. Y.

Controlling Crusher Waste with Woven Screens. A new 30-page booklet, fully illustrated, and containing tables of opening sizes and comparisons with perforated plate screens. LUDLOW-SAYLOR WIRE CO., St. Louis, Mo.

New wire screen catalog

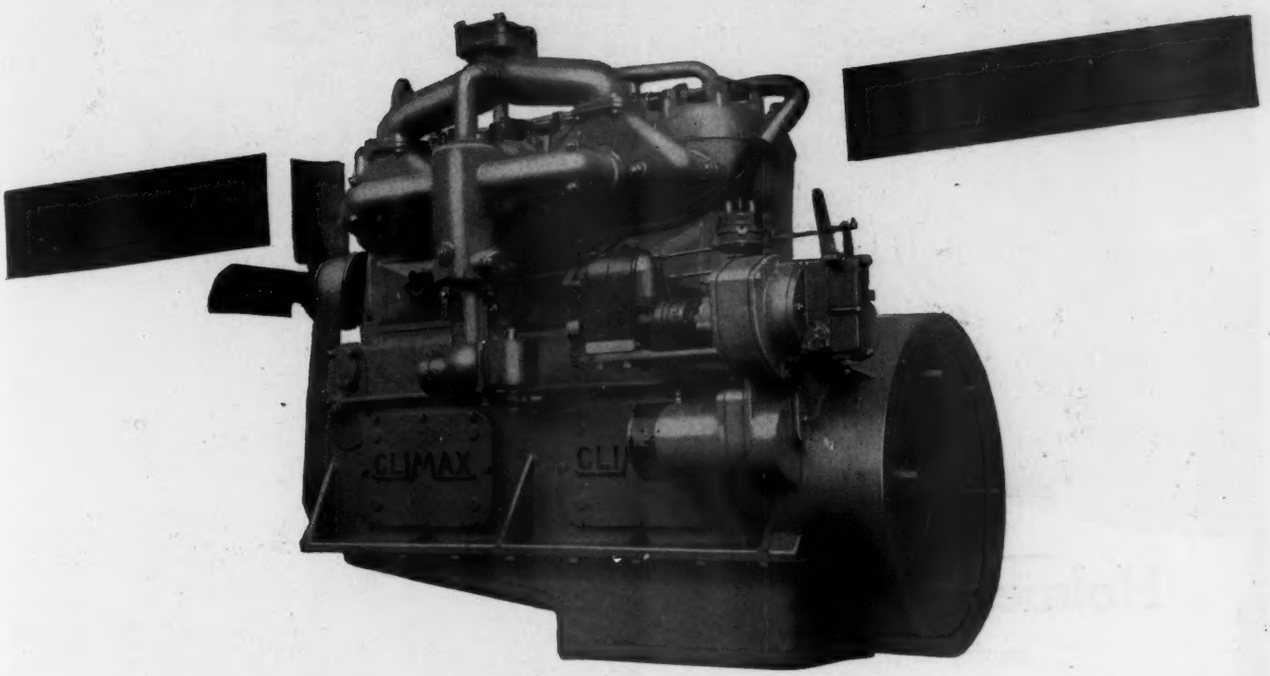
Portable Stone Cutter. A four-page illustrated leaflet describing the "Little O-V-S Cutter" for cutting to size, slabs of slate, granite, marble, tile and other stone-like material. OHIO VALLEY SLATE CO., Cincinnati, Ohio.

Here's What Foley Did. An illustrated article in the **Heil Quality News** for March, 1928, about the use of trucks at the crushing plant built in connection with the Hudson River bridge construction. THE HEIL CO., Milwaukee, Wis.

Treating Plants for Locomotive Water Supplies. An illustrated, 15-page bulletin describing the use of DEARBORN equipment for introducing properly compounded treatment into boiler feed water for the prevention of scaling, corrosion and foaming. DEARBORN CHEMICAL CO., Chicago, Ill.

Reeves Variable Speed Transmission. Catalog No. 88. A 64-page catalog, profusely illustrated with photographs and blue-prints and containing several tables of information. The catalog is divided into six parts, which describe the construction and operating principle, composite designs, remote and automatic controls, various industries using REEVES as standard equipment and engineering information. REEVES PULLEY CO., Columbus, Ind.

It's A Habit



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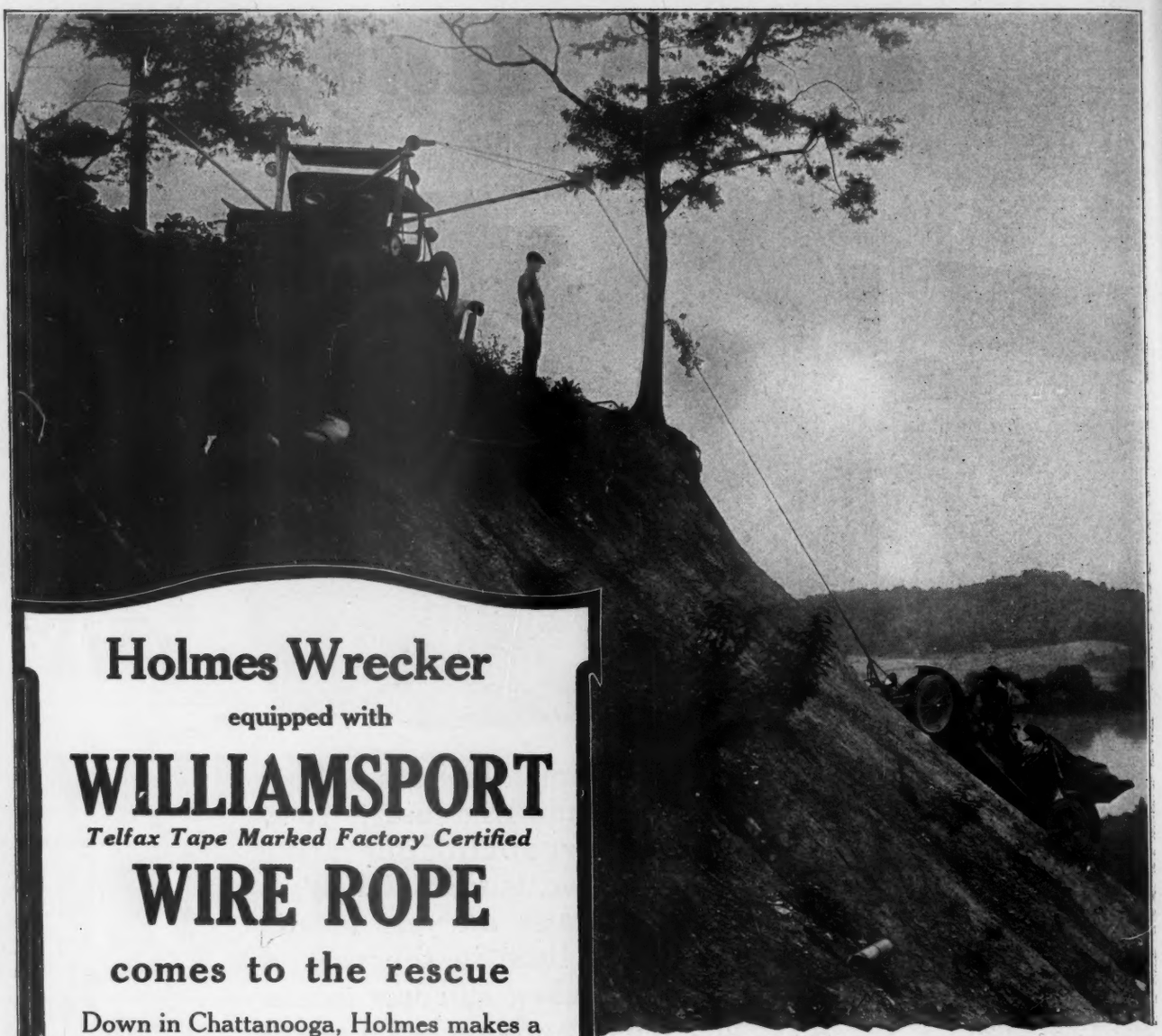

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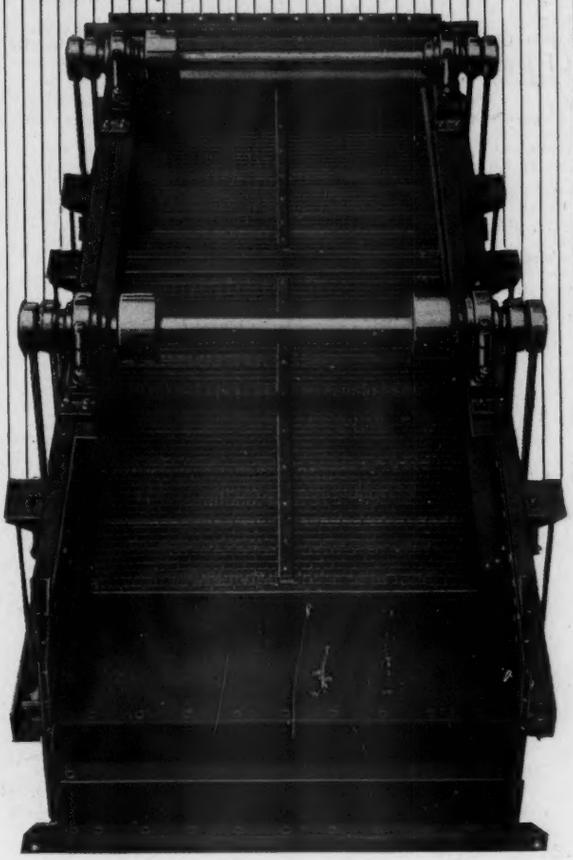

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American Manganese Steel Co.
Eagle Iron Works
Electro Metallurgical Sales Corp.
Link-Belt Co.
Timken Roller Bearing Co.
Vulcan Iron Works

Cement Pumps (See Pumps, Air Pumps)

Chain (Dredge and Steam Shovel)
American Manganese Steel Co.
Bucyrus-Erie Co.
Jeffrey Mfg. Co.

Chain (Elevating and Conveying)
Stephens-Adamson Mfg. Co.

Chain (Transmission)
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Chain Links (Cold Sheet, Repair, etc.)
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Arnold & Weigel.
Rob't W. Hunt Co.

Chutes and Chute Liners
Cross Engineering Co.
F. L. Smidth & Co.

Clamshell Buckets—(See Buckets, Grab, Clamshell, etc.)

Clamshell Cranes (See Cranes)

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Traylor Vibrator Co.

Clay Working Machinery
Bonnot Co.

Clutches
Fairbanks, Morse & Co.
W. A. Jones Fdy. & Machine Co.
T. B. Wood's Sons Co.

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Hardinge Co., Inc.
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Polysius Corporation
Raymond Bros. Impact Pulv. Co.
F. L. Smidth & Co.
Vulcan Iron Works.
Williams Patent Crusher & Pulverizer Co.

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Dings Magnetic Separator Co.

Concentrators (Slurry, etc.)
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Contractors and Builders
Burrell Eng. & Const. Co.
H. K. Ferguson Co.
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Galland-Henning Mfg. Co.
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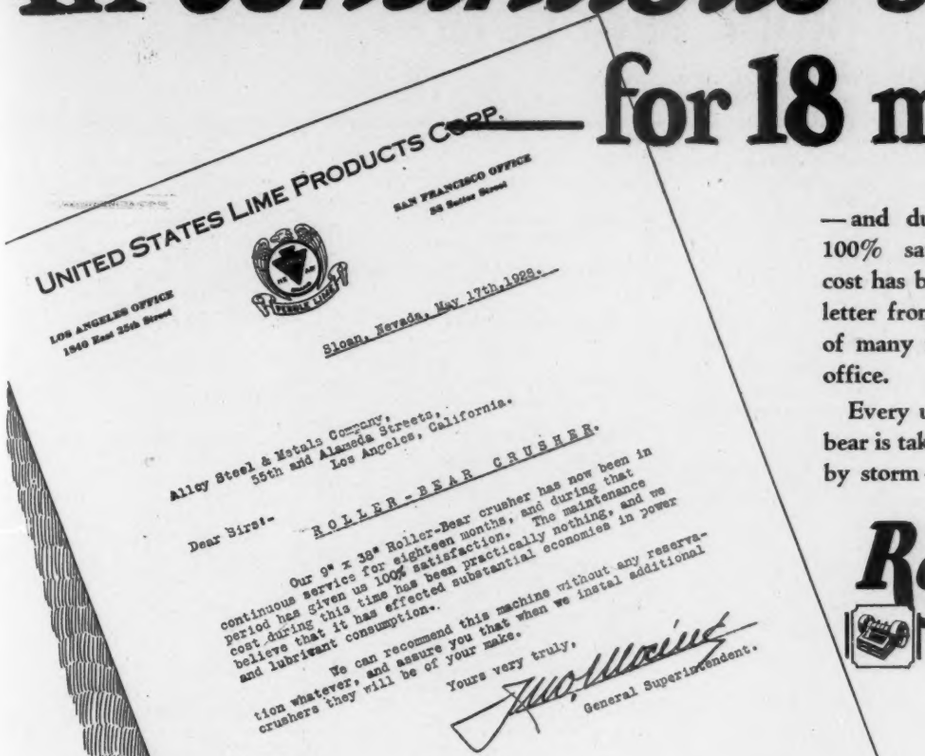
W. Toepfer & Sons Co.
Traylor Eng. & Mfg. Co.
Williams Patent Crusher & Pulverizer Co.

In *continuous* service — for 18 months!



UNITED STATES LIME PRODUCTS CORP.

SAN FRANCISCO OFFICE
82 Sutter Street

LOS ANGELES OFFICE
1840 East 25th Street

Sloan, Nevada, May 17th,1928.

Alloy Steel & Metals Company,
55th and Alameda Streets,
Los Angeles, California.

Dear Sirs:-

ROLLER-BEAR CRUSHER.

Our 9" x 38" Roller-Bear crusher has now been in continuous service for eighteen months, and during that period has given us 100% satisfaction. The maintenance cost during this time has been practically nothing, and we believe that it has effected substantial economies in power and lubricant consumption.

We can recommend this machine without any reservation whatever, and assure you that when we instal additional crushers they will be of your make.

Yours very truly,

General Superintendent.

JM-M

RODUCT FOR EVERY PURPOSE

—and during that period has given 100% satisfaction — the maintenance cost has been practically nothing — this letter from a Roller-bear user is typical of many more we have on file in our office.

Every user is a booster — the Roller-bear is taking the rock crushing industry by storm — send for catalog.

Roller-bear TRADE MARK **Rock Crusher**

ALLOY STEEL AND METALS COMPANY
OF CALIFORNIA INC.

55th and Alameda St. LOS ANGELES — Box 840 Arcade Station CALIFORNIA

Classified Directory of Advertisers in this Issue of ROCK PRODUCTS

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Conveyors (Monorail)
Cleveland Crane & Eng. Co.

Conveyors (Screw)
American Manganese Steel Co.

Coolers (See Kilns and Coolers, Rotary)

Core Drilling (See Drills—Diamond Core)

Correcting Basins
F. L. Smidth & Co.

Couplings (Flexible and Shaft)
De Laval Steam Turbine Co.
Falk Corp.
Huron Industries, Inc.
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W. A. Jones Fdy. & Machine Co.
T. B. Wood's Sons Co.

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Marion Steam Shovel Co.
Northwest Engineering Co.
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Orton Crane & Shovel Co.
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J. B. Ehrsam & Sons Mfg. Co.
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Hercules Powder Co.

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Monighan Mfg. Corp.
Northwest Engineering Co.
Orton Crane & Shovel Co.
Osgood Co.
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Armstrong Mfg. Co.
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Drills (Diamond Core)
E. J. Longyear Company

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Drills (Well) (See Drills, Blast-Hole)

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Drums (Magnetic)
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Vulcan Iron Works (Rotary)

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Northern Blower Co.
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Northern Blower Co.

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Hercules Powder Co.

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Elevators (See Conveyors and Elevators)

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Bonnot Co.
J. C. Buckbee Co.
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Mundy Sales Corp.

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Hercules Powder Co.
Keith Dunham Co.

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Northern Blower Co.

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United Filters Corp.

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Alloy Steel & Metals Co.
Coates Steel Products Co.

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Koppel Industrial Car & Equipment Co.

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Falk Corp (Helical)
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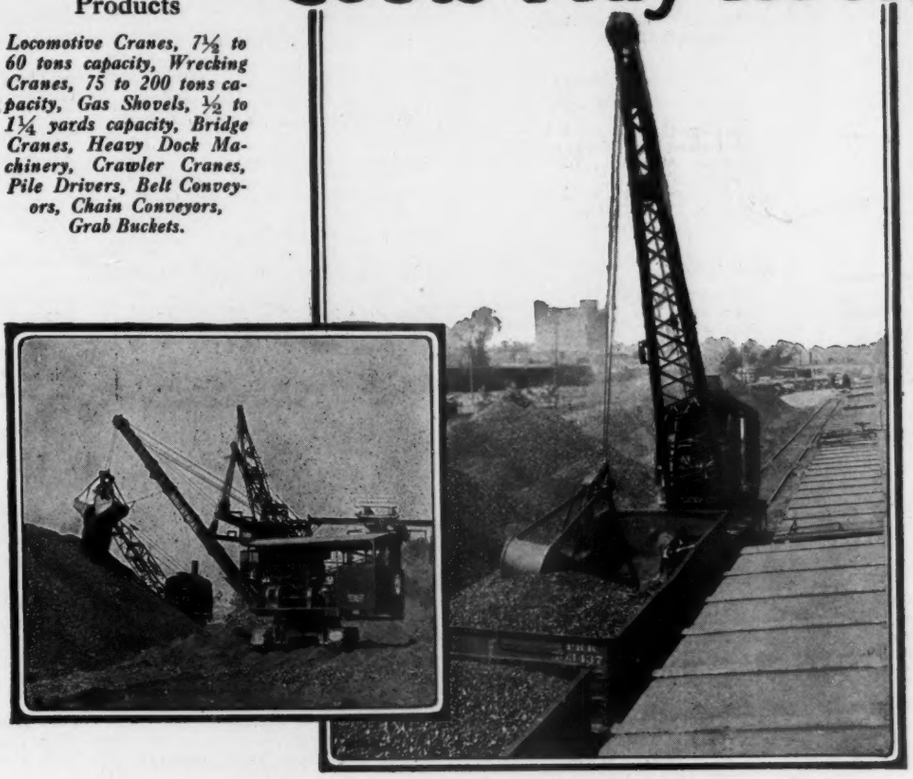
Stephens-Adamson Mfg. Co.
Vulcan Iron Works.

Do Your Handling Costs Play Hookey?

Products

Locomotive Cranes, 7½ to 60 tons capacity, Wrecking Cranes, 75 to 200 tons capacity, Gas Shovels, ½ to 1¼ yards capacity, Bridge Cranes, Heavy Dock Machinery, Crawler Cranes, Pile Drivers, Belt Conveyors, Chain Conveyors, Grab Buckets.



Handling costs, like school boys, often get beyond control and are lost sight of in the bigger scheme of a large manufacturing schedule. Yet authorities say that handling is one of the most costly parts of production and one place where big economies may still be effected.

For handling material in the yard, unloading of castings, bars and scrap, stocking of coal, loading of finished product and a score of other uses, no equipment will equal a locomotive crane in speed or operating economy.

If there is any doubt in your mind as to where you stand on handling costs get in touch with one of our representatives. He has been of service to many companies with problems identical with your own. And you can rely on his recommendations because of the universal satisfaction Industrial Brownhoist equipment has given for half a century.

Industrial Brownhoist Corporation

General Offices: Cleveland, Ohio.

District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, St. Louis, San Francisco, New Orleans, Bay City, Mich.

INDUSTRIAL BROWNHOIST

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Generators (See Motors and Generators)

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Grab Bucket (Hoists & Monorail) (See Cranes)

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Grinding Balls
Coates Steel Products Co.
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Traylor Vibrator Co.

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Polysius Corporation
Traylor Vibrator Co.

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Georgia Iron Works

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Hammer Mills (See Crushers)

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Mead-Morrison Mfg. Co.
Mundy Sales Corp.
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Sauerman Bros.
Smith Engineering Works
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Hose Couplings (See Couplings, Hose, Pipe)

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Prest-O-Lite Co.

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H. Miscampbell

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F. L. Smidth & Co.
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Vulcan Iron Works.

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McGann Mfg. Co., Inc.
H. Miscampbell.
Vulcan Iron Works.

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Dings Magnetic Separator Co.

Laboratory Crusher
Sturtevant Mill Co.

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Raymond Bros. Impact Pulv. Co.

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Locomotive Cranes (See Cranes)

Locomotives (Steam, Gas and Electric)
Fate-Root-Heath Co. (Gas).
Lima Locomotive Works, Inc. (Steam)
Plymouth Locomotive Works (Gas).
H. K. Porter Co. (steam)
Vulcan Iron Works
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Traylor Vibrator Co.
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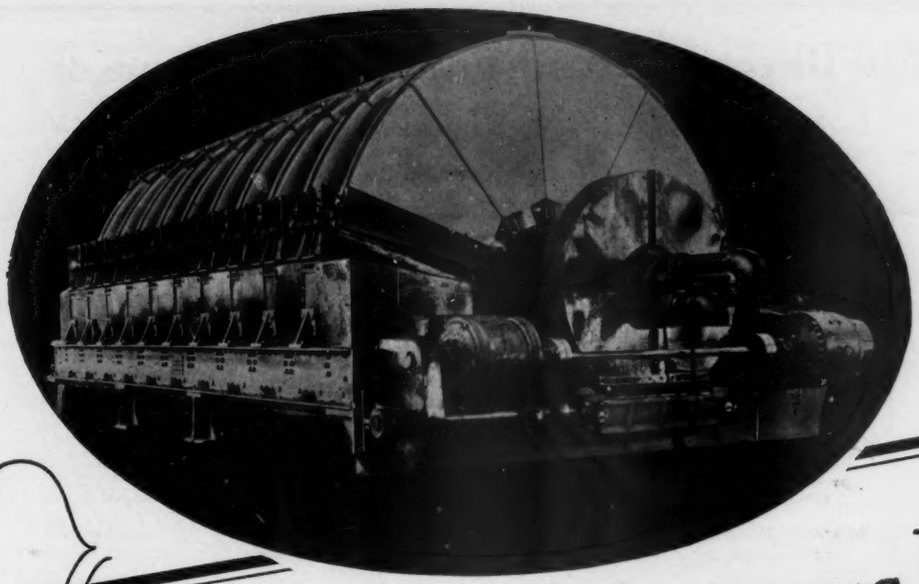

The American Continuous Filter ASKS—

Why *Evaporate* All the Water from Slurry?

American Continuous Filters in Paper and Pulp Mills

The pulp type American Filter, which is very similar to the slurry filter, is widely used in the paper and pulp mills of the States and Canada.

Units totalling approximately 70,000 square feet of filter area have been installed to date.

TEN large kilns in four wet process cement plants are being relieved of a considerable part of the burden of making clinker.

Water contents of the slurries are first being reduced from 35-45% to 20-25% by American Continuous Filters.

This is a most important factor in cement production as it materially lowers coal consumption.

In addition, with the drier slurry, mud rings are practically eliminated, thus reducing labor and brick maintenance charges.

From the angle of better cement, finer grinding in more dilute pulps is made practical as the excess water is readily removed by the filters.

These ten large kilns — burning clay-limestone and slag slurries— suggest the way toward lowered production costs and even better cement for all wet process plants.

Our engineers will be glad to discuss this matter in detail. Just write to our nearest office.

UNITED FILTERS CORPORATION

Main Office and Laboratory—Hazleton, Pa.

New York Chicago Salt Lake City Los Angeles

Export Office—25 Broadway, New York Code Address—Unifilter, New York

Fraser & Chalmers (S. A.), Ltd., Johannesburg

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Northwest Engineering Co.
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Richardson Scale Co.

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Richardson Scale Co.

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Sturtevant Mill Co.
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Universal Vibrating Screen Co.
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Seal Rings (Rotary Kiln)
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Marion Steam Shovel Co.
Monighan Mfg. Corp.
Northwest Engineering Co.
Orton Crane & Shovel Co.
Osgood Co.
Thew Shovel Co.

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Traylor Vibrator Co.

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Vulcan Iron Works

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A. Leschen & Sons Rope Co.
John A. Roebling's Sons Co.

Slugs (See Grinding Balls and Nuggets)

Speed Reducers
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Falk Corp.
Farrel-Birmingham Co., Inc.
Huron Industries, Inc.
D. O. James Mfg. Co.
W. A. Jones Fdy. & Machine Co.
Stephens-Adamson Mfg. Co.
Waukesha Motor Co.

Spouts, Chutes (See Chutes and Chute Liners)

Spouts (Magnetic)
Dings Magnetic Separator Co.

Sprockets and Chain
American Manganese Steel Co.
W. A. Jones Fdy. & Machine Co.
Pittsburgh Coal Washer Co.

Steel Bars
Timken Roller Bearing Co.

Steel (Electric Furnace)
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H. K. Ferguson Co.

Steel (Open Hearth)
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Winches and Capstans
Dobbie Fdy. & Mach. Co.
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A. Leschen & Sons Rope Co
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Worm Gears (See Gears)

Zinc
New Jersey Zinc Co.

PERFORATED METAL SCREENS

A copy of our catalog will help you in selecting to best advantage. Send for it.

WITH a line of perforated metal screens that is complete, and with production facilities more than ample—we are prepared to take care of your every requirement with promptness and precision.

If you seek Perforated Metal Products from a source of known reliability—that assures you of highest quality, reasonable cost, and dependable service—then you can do no better than to come to Cross.

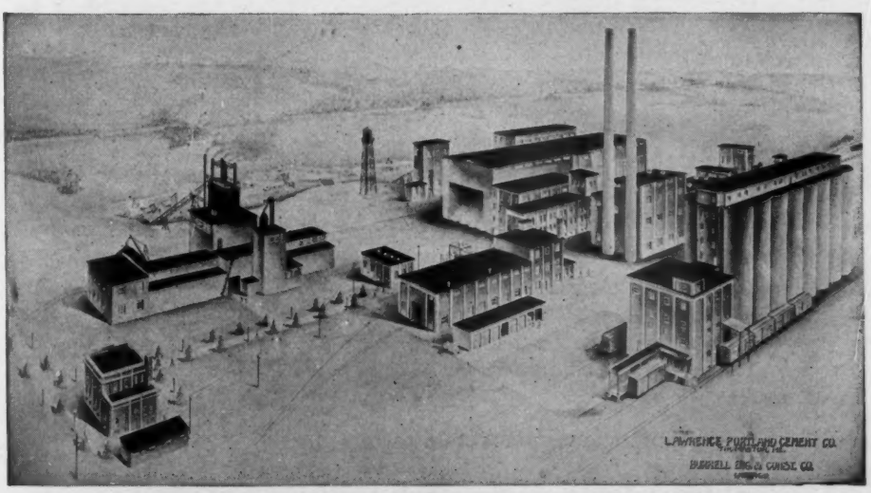
A large stock of material always on hand. Rush orders filled promptly.

CROSS ENGINEERING COMPANY

Office and Works—Carbondale, Pa.

BURRELL ENGINEERING and CONSTRUCTION COMPANY

513 JACKSON BLVD., CHICAGO



Designers and Builders of

Cement Plants, Stone Crushing Plants, Lime and Gypsum Plants, and Associated Buildings

Our artist's conception of the plant under construction for Lawrence Portland Cement Company, Thomaston, Maine, noteworthy because plant is practically concrete throughout

A PARTIAL LIST OF OUR CLIENTS

Albert Mfg. Co.
Atlantic Gypsum Co.
Blue Mountain Stone Co.
Colorado Portland Cement Co.
Coplay Cement Mfg. Co.
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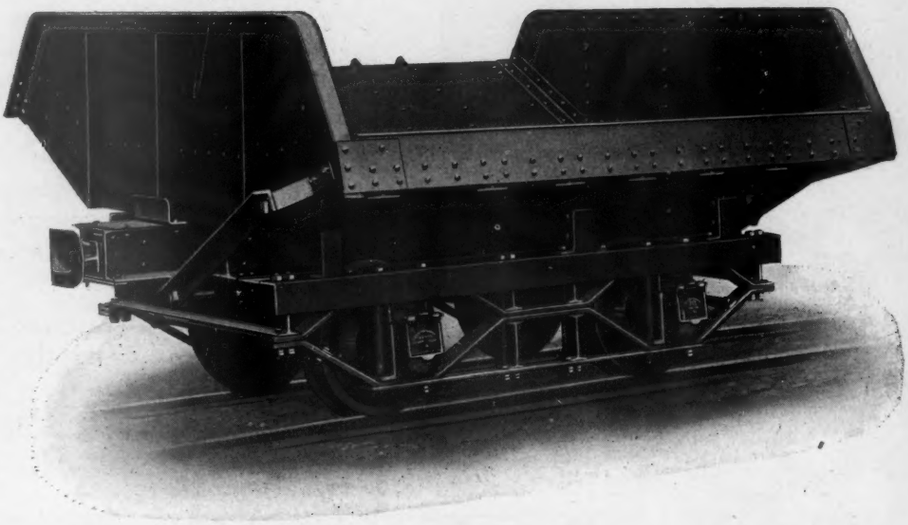
Wellston Iron Furnace Co.

CONTINENTAL DUMP CARS!

Measure a dump car by ton miles—by the length of time it will stand up under the constant pounding of quarry service. By ease of handling.

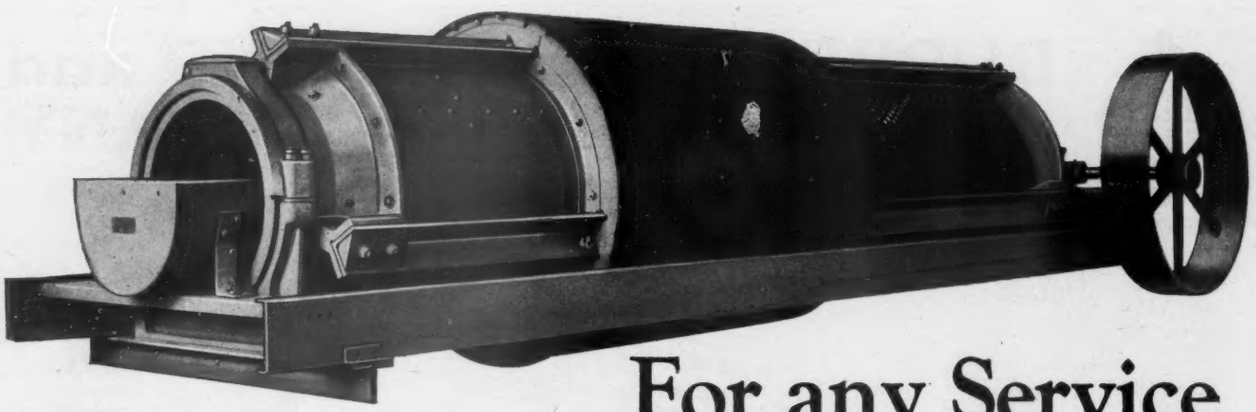
These are the matters we have considered in the construction of CONTINENTAL CARS. Every part and member is made of the best materials available for the purpose—with adequate bracing and reinforcing at those points subject to the most wear and strain.



The wheels are made to M.C. B. specifications—of larger size than ordinary—to permit easier moving and the handling of more cars in a train.

CONTINENTAL CARS are available in all types, sizes and track gauges. Write for catalog.

KENTUCKY WAGON MANUFACTURING COMPANY, Louisville, Ky.



For any Service

Rollerless Rotary

FOR every type of service for which a rotary screen is adaptable, the unique design of the Rollerless Rotary makes it a machine perfectly fitted to perform the work with greatest efficiency. The **self-aligning** feature—exclusive with the ROLLERLESS ROTARY—keeps the cylinder in perfect alignment at all times, with resulting **less wear** and **saving of power.**

Whether it be a plain screen with one or more outer jackets, or with a scrubber compartment for washing, the ROLLERLESS ROTARY will operate to the complete satisfaction of the most critical user.

GALLAND-HENNING MANUFACTURING COMPANY
MILWAUKEE — U. S. A.

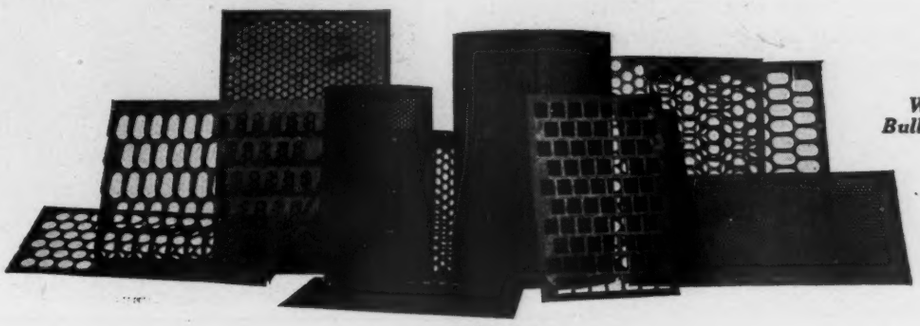
When writing advertisers, please mention ROCK PRODUCTS

Better Screen Plates!

SPECIALIZING for years in the manufacture of Perforated Metal Screens has not been without result. We have studied the screen requirements prevailing under every imaginable condition, and gone about perfecting our products accordingly.

The net result is that Morrow Screens are used today with universal success for sizing sand, gravel, stone and other bulk materials.

Whatever your requirements in matters of size, shape or perforations, you are certain to find satisfaction in the use of Morrow Perforated Metal Plates. A large and varied supply always kept in stock. Also, we are equipped to manufacture special plates to your own specifications.



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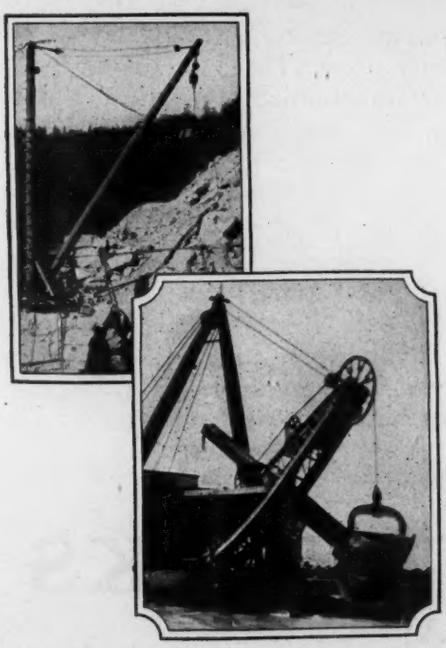
THE MORROW MFG. CO. QUALITY MORROW SERVICE WELLSTON - OHIO

ROEBLING WIRE ROPE



In excavating work exceptional conditions exist which must be met by the use of wire rope possessing exceptional qualities. Our

"BLUE CENTER" STEEL WIRE ROPE

possesses these qualities and is the ultimate choice of discriminating engineers for every purpose for which wire rope is used.

Catalog A-545

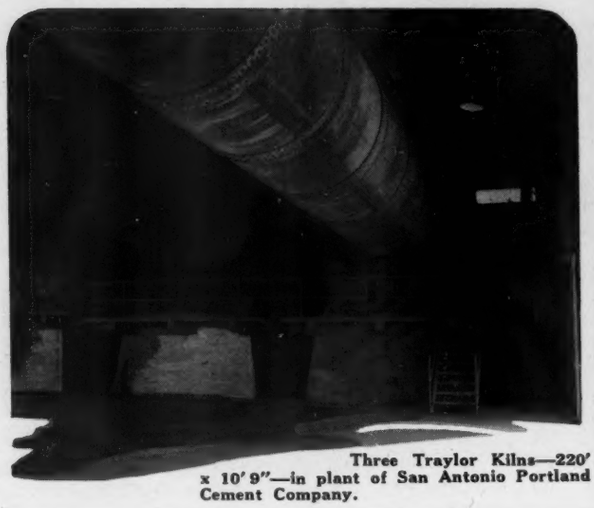
John A. Roebling's Sons Company Trenton, N. J.

TRAYLOR Rotary Kilns

GIANTS in size and production capacity—Traylor Rotary Kilns are "pygmies" in their use of power.

The Single Roll Support—a distinctive feature of Traylor Kilns—has done much to make them favorites throughout the cement industry. This feature provides for easy and accurate lining up of the rollers *before* the shell is placed in position. For this reason, Traylor Kilns *always run true.*

Though the largest kilns in the world are Traylor Kilns, their power requirements are less than the majority of kilns much smaller in size and burning capacity.



Three Traylor Kilns—220' x 10' 9"—in plant of San Antonio Portland Cement Company.

TRAYLOR ENGINEERING AND MANUFACTURING COMPANY, Allentown, Penna.

NEW YORK 30 Church St. | CHICAGO 1414 Fisher Bldg. | LOS ANGELES 605 Chester Williams Building | SEATTLE 815 Alaska Bldg. | SALT LAKE CITY 101 W. 2nd South St.

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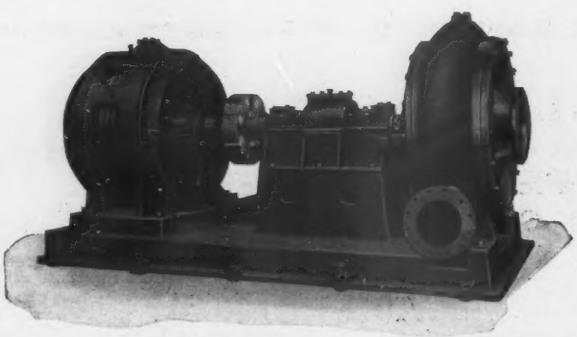
HEAVY DUTY SAND PUMPS



10-in. Left Hand Bottom Discharge Heavy Duty Sand Pump directly connected to 300 H.P., 600 R.P.M. Allis-Chalmers Type ANY Motor

THE accompanying cut shows one of our Heavy Duty units. These pumps are very rugged and are substantially built throughout. The bearings, both radial and thrust, are of such design and construction that the unit is capable of meeting extreme conditions of severe service.

Our line now embraces these pumps in sizes 6-in., 8-in., 10-in., 12-in., 14-in., and 15-in., can be supplied for directly connected motor drive, or for chain or belt drive. All units can be furnished in either right or left hand, and position of discharge top or bottom.

Prices and descriptive sheets sent on request

GEORGIA IRON WORKS

AUGUSTA, GEORGIA

Established 1891

The Osgood

CONQUEROR

"It's the Outstanding Value of the Year"-so say Conqueror users

Makes Light of Heavy Work

IN the hardest kinds of excavating, the Osgood CONQUEROR asks no favors and needs no pampering. Its positive wire rope crowd, backed by a powerful engine fully equipped for efficient operation, easily insures a full dipper load within dipper length. The minimum of effort is required on the part of the operator, who has instant control of all motions from his position in the cab. Regardless of the class of material, average daily production is high. And Osgood simplicity and durabilty of construction is a guarantee of continuous, profitable operation.

Write or wire for *full* details.

The CONQUEROR is equally efficient as a Shovel, Dragline, Back Hoe, Skimmer, Clamshell or Crane. Equipment includes electric starting and also electric dome and flood lights, gasoline filter, air cleaner and other accessories of nationally known make.

SHOVELS, DRAGLINES
BACK HOES

THE OSGOOD CO.
MARION, OHIO, U.S.A.

SKIMMERS, CLAMSHELLS
CRANES

603

Improved type "C"

Highest Screening Efficiency, Lowest Screen Cost

UNIVERSAL VIBRATORS—

THE superior performance and economy that has characterized dozens of UNIVERSAL installations in rock products plants has been achieved only through the fundamentally correct design of these screen units. Whatever your particular screening problem, we are sure the Improved Type "C" will bring to you a new conception of what to expect in the way of screen efficiency.

The Type "C" Screen is made in two sizes, using screen cloth 3 ft. by 6 ft. and 3 ft. by 8 ft., sizes which meet very nearly with all around requirements and deliver the very greatest screening efficiency.

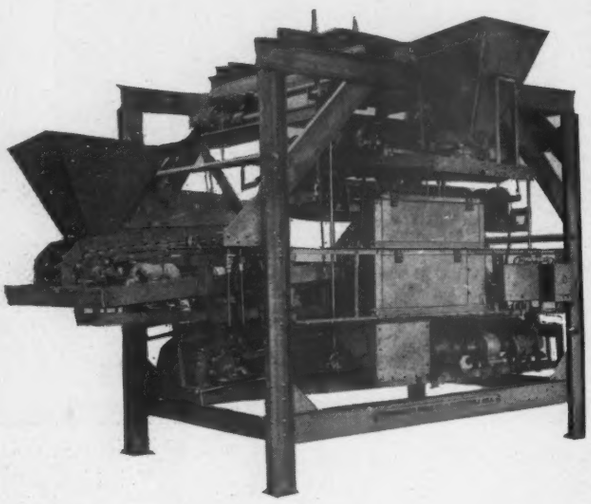
Large production of these standard size units permit of a remarkably low price on UNIVERSALS.

UNIVERSAL VIBRATING SCREEN CO.
RACINE ~ ~ WISCONSIN

EXACT PROPORTIONING

of Raw and Finished mixes means PERFECT CEMENT

The RICHARDSON "CONVEYoWEIGH"



insures a most intimate and accurate mix and uniform cement

RICHARDSON "CONVEYoWEIGHS" actually WEIGH the ingredients in the mixes with close accuracy. They are SELF-ADJUSTING to varying streams and there are no errors or spoiled mixtures.

USED BY

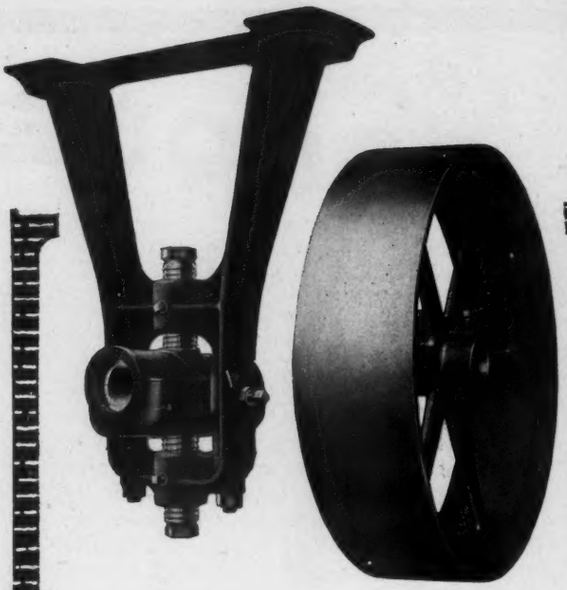
Lawrence Portland Cement Co.
Ford Motor Company
Atlas Portland Cement Co.
Marquette Cement Mfg. Co.
etc., etc.

Tell us your capacities and let us send you data on suitable "CONVEYoWEIGHS"

RICHARDSON SCALE CO.

10 Colfax Avenue Clifton, New Jersey

New York Chicago Philadelphia Pittsburgh Boston
Omaha Wichita Gulfport Atlanta Los Angeles



One Source For All One Party Responsible

It is good management to place responsibility for the merit of a product, or a specialized service, with that organization which works with heart and mind to insure the utmost satisfaction from the service its product renders throughout years of use.

Such an organization is the T. B. WOOD'S SONS CO. For more than seventy years we have served the industries of this country in solving their problems of Power Transmission, and installing Power Transmission Machinery and Equipment.

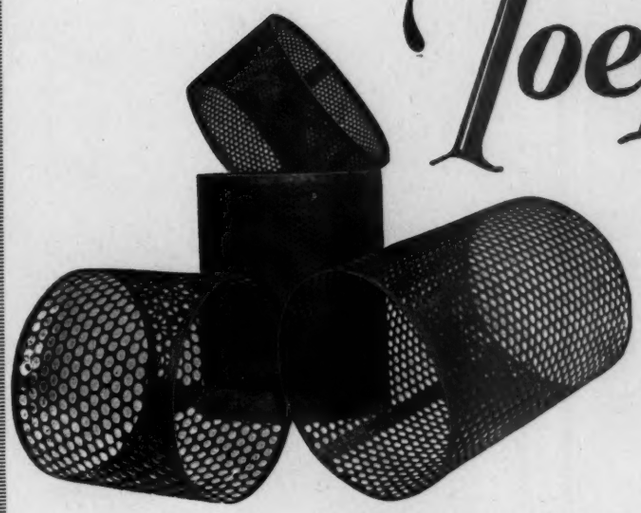
We gladly place our seventy years experience at your service without obligation.

DRIVE RIGHT
POWER TRANSMISSION ASSOCIATION

T. B. Wood's Sons Co.
Chambersburg, Pa.

POWER TRANSMISSION MACHINERY AND SPECIAL MACHINERY

Toepfer screens



THE kind of screen you use makes a big difference in the cleanliness of your product and the cost of its production. The right kind of screens will do better, cleaner, more uniform work at lower labor cost—and at the same time increase your output.

We are prepared to supply Screen Sections complete, for any make or type of screen, either cylindrical or conical, in any desired thickness of metal—with any size or shape perforations—for stone, sand, gravel or any other product that requires careful screening.

TOEPFER PRODUCTS

Sand Washers
Elevators
Bin Gates
Washing Screens
Feeders
Grizzlies
Conveyors
Perforated Metals

To insure prompt deliveries, we carry in stock a large tonnage of high carbon steel plates of sizes generally used. Prompt and careful attention to your order is assured.

W. TOEPFER & SONS COMPANY
Milwaukee - - - - - Wisconsin

De Laval Worm Gear
A Superior Speed Reducer for difficult situations

THIS 9¾ ratio gear is transmitting 15 HP. from a 900 RPM. motor through a chain drive to an elevator in a cement mill. The heavy worm gear wheel bearings provide ample support for overhung sprockets or pinions.

De Laval Steam Turbine Co., Trenton, N. J.

Longyear crew widening a single track tunnel on a limestone property in Ohio.

Your Costs Reduced— Quality Assured

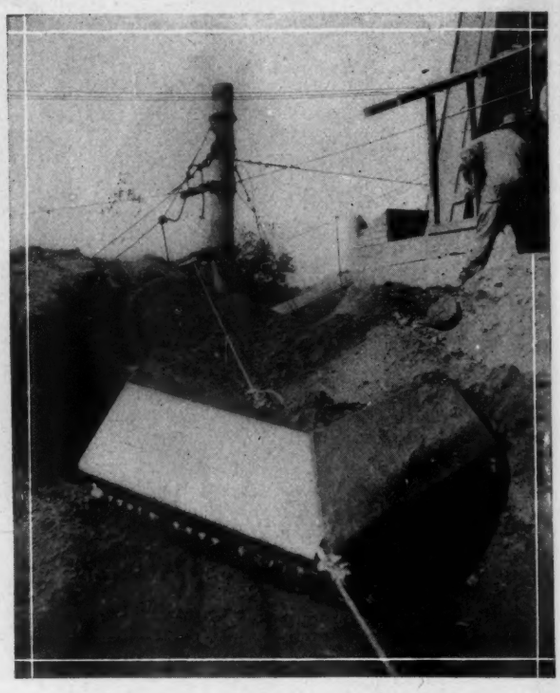
PRODUCERS of rock products find that diamond core drilling and underground mining methods, under many conditions, reduce costs of production and control the quality of output.

Diamond drilling extracts actual cores of your rock. This is of value because you can determine in advance the exact location, area, depth and quality of your stone—important data in blocking out reserves, figuring amount of necessary stripping, and laying out surface plans.

Underground mining methods enable you to recover good stone under an overburden so heavy that the cost of stripping is prohibitive. Purity of product may be controlled, for surface wash and areas of sand and clay may be avoided, thus producing a product free from foreign matter. Stone is recoverable from vertical or steeply inclined beds at depths impracticable by quarrying.

Longyear has had years of experience in diamond drilling, shaft sinking and mine development. Our work is done under contract and you will find it worth while to write for further information.

E. J. Longyear Company
Minneapolis, Minnesota, U.S.A.



Beaumont Cable Drag Scraper

SIMPLE—ECONOMICAL

The Cable Drag Scraper is offered as the most economical solution of such jobs as stripping overburden, working bank deposits of sand, gravel, clay, etc. For stock piling it is without an equal, covering the entire area without having to make room for tracks. Thus every square foot of the storage area can be put to profitable use.

The Beaumont Scraper is designed for 100% shear cut and is of very rigid construction. Teeth are reversible and are of manganese steel. Cutting blade separate from main body of Scraper so as to be easily renewable.

Built in sizes from 1/3 to 4 yards, for either electric, gasoline, steam, or belted operation.

Complete specifications and prices will be furnished on request

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313 Arch Street
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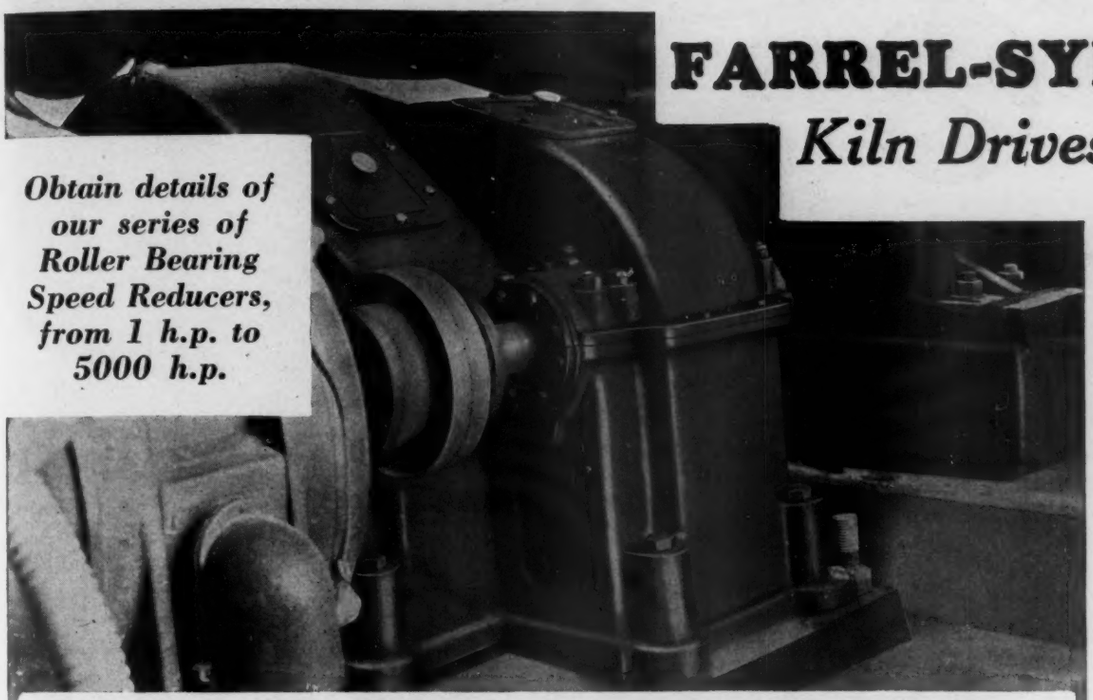


FARREL-SYKES
Kiln Drives

Obtain details of our series of Roller Bearing Speed Reducers, from 1 h.p. to 5000 h.p.

USE THE GEAR WITH A BACK-BONE

FARREL-BIRMINGHAM CO., INC.

SUCCESSORS TO
FARREL FOUNDRY & MACHINE CO, ANSONIA, CONN. AND
BUFFALO, N.Y. AND BIRMINGHAM IRON FOUNDRY OF DERBY, CONN.
ADDRESS REPLIES TO THIS ADVERTISEMENT TO BUFFALO PLANT
344 VULCAN ST., BUFFALO, N. Y.

"Always in Working Order"

THAT'S what the General Manager of a mid-western quarry said when asked about the performance of his Shay Geared Locomotives.

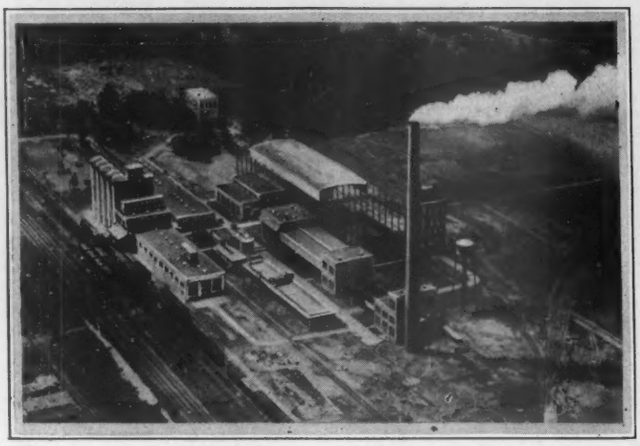
Sturdily built, of high grade materials, Shays render dependable, continuous service and keep the loads moving day after day, no matter what operating conditions exist.

The ordinary maintenance every locomotive needs is further facilitated by the location of the Shay's driving shaft, gears and pinions—all on the outside of the locomotive, readily reached and easily adjusted.

Drop pits and elaborate machine shop facilities are unnecessary when Shays are on the job.

Complete Shay construction advantages are detailed in the Shay catalog. Let us send you a copy.

LIMA LOCOMOTIVE WORKS, Incorporated
Lima, Ohio — 17 East 42nd Street, New York



Alpha Portland Cement Company (formerly Phoenix Portland), Birmingham, Ala. A NORBLO equipped plant

NORBLO

DUST COLLECTING EQUIPMENT

ANY way you figure, dust losses in Cement Mills, Lime and Gypsum plants count **against** operating profit. The dust itself is worth saving. In fact, volume for volume, it is probably the most valuable part of your product. NORBLO saves it—for profitable sale! Machinery lasts longer, too, in NORBLO equipped plants—because it is fully protected from the dust hazard.

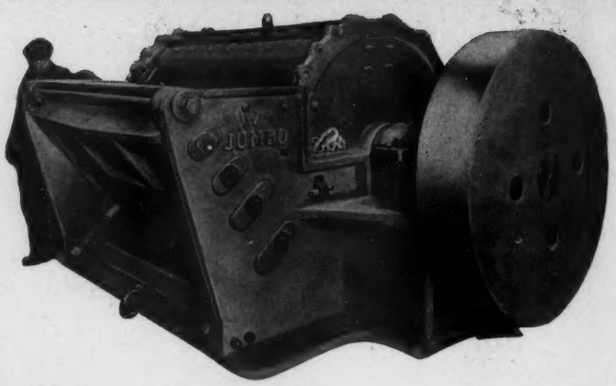
The thoroughness with which NORBLO handles the dust problem has caused this equipment to be specified in a number of the most modern plants. Results in all cases have been everything that might reasonably be expected. Your plant, too—whether new or old—can be profitably equipped with NORBLO!

The NORBLO GUARANTEE—

We will give you complete satisfaction, and we positively guarantee NORBLO Equipment to conform to the requirements of your State Sanitary Laws and to be unsurpassed in construction and operation for the class of work for which it is intended.

NORTHERN BLOWER CO.

West 65th St. and Denison, CLEVELAND



Hammer Crushers

If you wish to handle larger stone, cut crusher plant investment 50% to 75%, have one crusher supplant 2 or 3, obtain better size control and lower crushing costs, investigate Williams Hammer Crushers. The "Mammoth" reduces 48" rock to 1¼", the "Jumbo" 20" to 1¼", and the "Jumbo Junior" 14" stone to 1¼" ¾" or agstone if so adjusted. We also build the "NON-CLOG" for wet muddy rock and the "Universal" fine grinder for 20, 40 and 80 mesh grinding. Write us.

Williams Patent Crusher & Pulverizer Co.
800 St. Louis Ave., St. Louis, Mo.

Chicago	New York	San Francisco
37 W. Van Buren St.	15 Park Row	415 5th Street

Williams

PATENT CRUSHERS GRINDERS SHREDDERS

LOCOMOTIVE OHIO CRANE

Steam—Gas—Electric

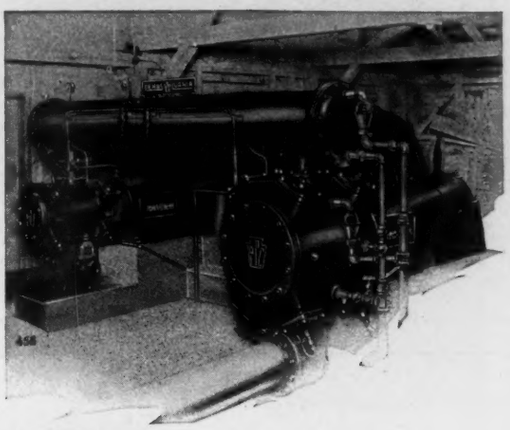
Hook, Clamshell, Dragline Magnet or Pile Driver Service

10 to 50 Ton Capacities

The Crane with the 10 Year Guarantee
Catalog on Request

THE OHIO LOCOMOTIVE CRANE CO.
High Street, Bucyrus, Ohio

"None Better Built"



PENNSYLVANIA Duplex Single Stage and Two-Stage Cross Compound Air Compressors have won the unqualified approval of many users. In every way, this equipment has proved entirely worthy of the slogan, "None Better Built."

PENNSYLVANIA

Pump and Compressor Company
Main Office and Works: Easton, Pa.
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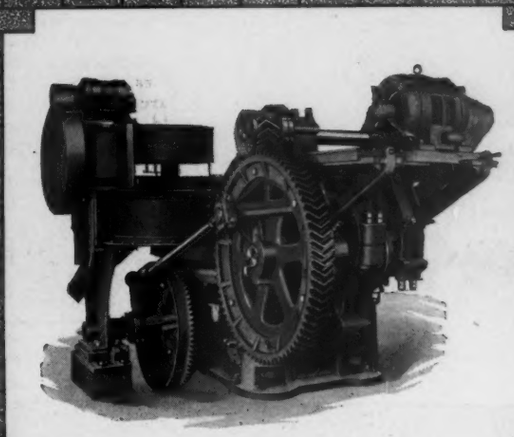
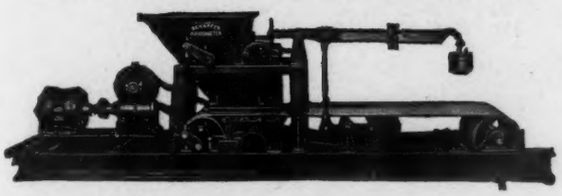
THE SAGINAW ROTARY PRESS



One of these machines, placed in service in 1904, is still producing Sand-Lime Brick at the rate of 3000 brick per hour. Large capacity—economical to operate.

JACKSON & CHURCH
SAND LIME BRICK MACHINERY *Company* SAGINAW, MICH. U. S. A.

SCHAFFER POIDOMETER



ALMOST HUMAN

Schaffer Poidometers are the mechanical brains of the plant. They are more than that—they are guardians of the quality standards you have set for your product—they prevent waste and assure accuracy and maximum economy.

If you are handling a variety of materials, arrange your Poidometers in batteries—set one for each material and for the proportion wanted—then forget it! The Poidometer will do your bidding better than your most loyal employee. If any machine is not getting its full quota of material, the entire battery will automatically stop. Space does not permit of a thorough explanation of the many cost-saving qualities of Schaffer Poidometers.

WRITE FOR FULL DETAILS

SCHAFFER POIDOMETER CO.
2828 Smallman, Pittsburgh, Pa.

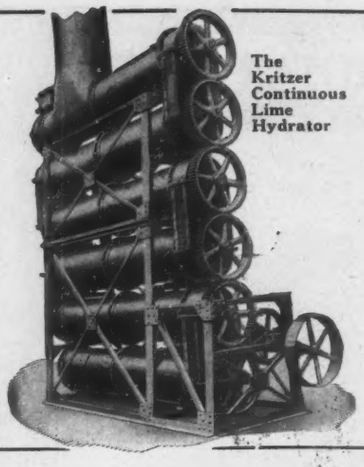
New Type Dust Arrestor

Each bag has individual spring suspension. Shaking is done horizontally, like snapping a rug, flexing material and getting all dust out of cloth. In ten minutes a bag can be replaced and operation resumed.

Patented and Patents Applied for

"Quality Equipment Pays in the End"

THE NEW HAVEN SAND BLAST CO.
New Haven, Conn. **Cleveland, Ohio**



The Kritzer Continuous Lime Hydrator

HYDRATE

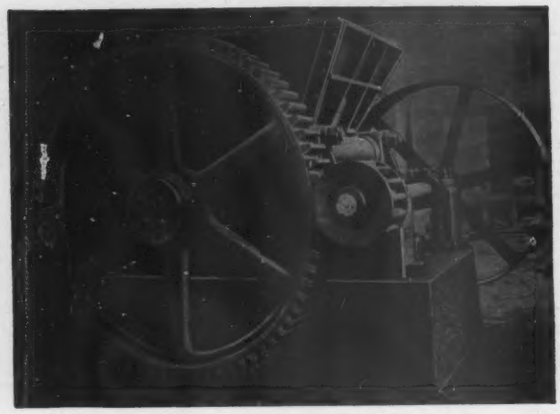
Years ago we helped our customers create a demand for their hydrate. Properly prepared hydrate now has an established market. That's why every lime manufacturer should have an efficient, economical hydrating plant.

THE KRITZER Continuous Lime Hydrator is efficient in production and economical in operation and maintenance. Let us investigate exhaustively the local conditions peculiar to your proposition, and then apply our experience of many years and design a plant to meet those conditions.

A KRITZER plant, scientifically adapted to your conditions, will give you the best product at lowest cost

THE KRITZER COMPANY

515 West 35th Street CHICAGO, ILL.



IF you had seen the McLanahan Single Roll Crusher before ordering your first Gyratory or Jaw Crusher you would now be running only the McLanahan Crushers.

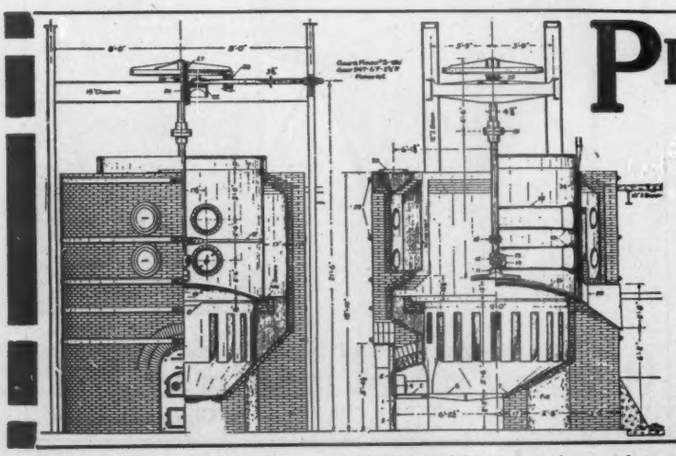
After many years' practical experience building and operating other crushers, we brought out the first Single Roll Crusher, proved it best, simplest and most economical—making least fines—requires but little head room—no apron or hand feeding—takes wet or slimy material.

Capacity, 5 to 500 Tons Per Hour

McLanahan-Stone Machine Co.
Hollidaysburg, Pa.

Screens, Elevators, Conveyors, Rock Washers, Etc.

THE editorial library of Rock Products contains practically every obtainable treatise relating to the production of stone, sand, silica, phosphate rock, gypsum and other non-metallic minerals and on the manufacture of cement, lime, gypsum products, etc. The editors are technical men and are familiar with these books. Our library of manufacturers' literature is as complete and up-to-date as possible. Rock Products welcomes inquiries, and our facilities are ever at the disposal of our subscribers and advertisers.



PERFORMANCE PLUS!

Fundamentally correct from all engineering and construction standpoints, Ehrsam Calcining Kettles have become virtually standard equipment in calcine plants the country over. Through the years that we have built and sold this equipment, the record of Ehrsam Kettles has been one only of *satisfactory performance.*

The J. B. Ehrsam & Sons Mfg. Company
Enterprise, Kansas

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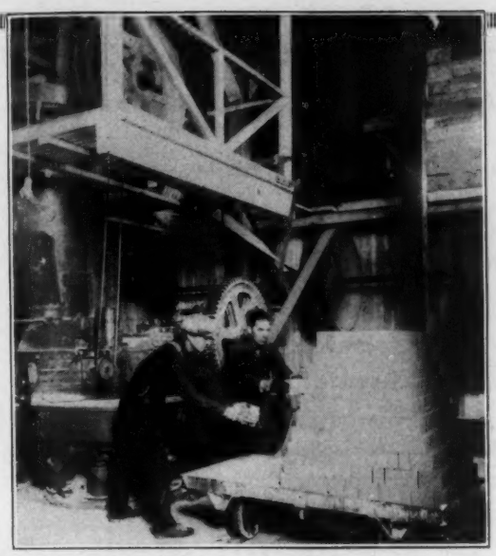

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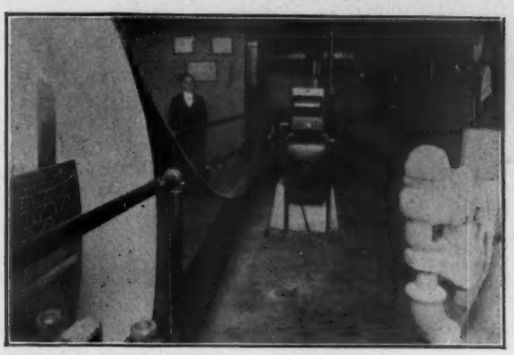
Take a "strangle hold" on the Sand-Lime Brick business in your locality. This versatile building material is rapidly gaining in popularity with architects and builders. The Komnick Process and Sand-Lime Brick Machinery will build profit for you. Write us for details.

KOMNICK MACHINERY COMPANY, Inc.
Lafayette Building, Detroit, Michigan

PRODUCTION LOSS CUT
to 2/10ths of 1%



TWENTY years ago a 36-inch 3-ply belt, in a certain large mill (whose name we will give on request) was so successfully run slack without slip after treatment with Cling-Surface that . . . ten years later, with group drives of 1½ to 5 inch belts substituted, Cling-Surface was continued on practically all drives in the plant.

Certified figures, gathered jointly by the mill superintendent and staff engineers of A. C. Nielsen Co., of Chicago, show belt slip reduced to creep; and to what is a major saving, a production loss per machine of only 2/10ths of 1%. In addition, belt care and repair has been all but eliminated; bearing strain and lubrication normalized. The belts themselves remain pliable and apparently still are good for many, many years of service—all these benefits gained for about $3.00 worth of Cling-Surface per month for the whole mill.

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The Scientific Belt Treatment
GET FREE COPY OF TESTS

Let us mail you a free copy of the certified Nielsen Survey No. 11 covering this mill's experience, and/or let us submit our 60-day approval offer to test Cling-Surface in your own plant. Write Cling-Surface Co., 1027 Niagara St., Buffalo, N. Y., for trial order; 1 gal. @ $3.50; 3 gals. @ $3.40 per gal.; or 6 gals. @ $3.25 per gal. State whether conditions are warm, dry, dusty or the reverse. If trial is not satisfactory, there is to be no charge.

Good Will!

It is one thing to *win* good will. And yet another thing to *hold* it. The "Clyde" Hydrator—in years of faithful and unfaltering service to the hydrate industries—*has done both.* Surely convincing proof of reliability and operating efficiency.

We also manufacture Vertical Shaft and Rotary Lime Kilns, Dust Collectors for Lime and Cement Plants

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SOON you'll be looking over the screening equipment for mid-season replacements.

Week ends then become important.

Let Hendrick furnish the perforated metal screens and they'll be at your siding the week end you want them there.

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1000 to 40,000 Tons

of Material Are Hauled Each Day from Shovels to Crusher

With the Lowest Possible Haulage Cost in Plants Equipped with the

Woodford Haulage System

Operated by

One Operator in the Main Control Tower

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Incomparable

The world's premier magneto. Standard of the construction machinery industry.

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FIRST NATIONAL BANK BUILDING

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Builders of Cement, Rock Crushing and Gravel Plants for Twenty Years

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With which is incorporated CEMENT and ENGINEERING NEWS Founded 1899

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- ☐ Sand & Gravel
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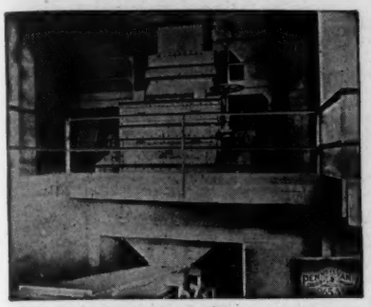

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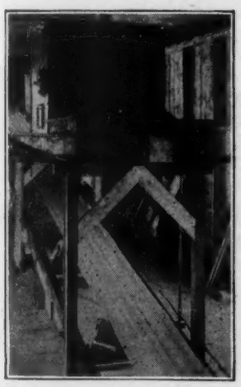

THE MERRICK CONVEYOR WEIGHTOMETER

Any material which is conveyor-handled can be weighed without additional handling or loss of time by the Merrick Conveyor Weightometer.

An Automatic—Continuous—Accurate Record

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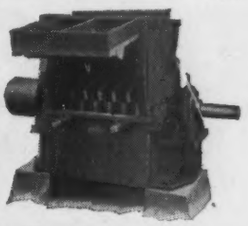

The capacities of Jeffrey Swing Hammer Pulverizers range from 5 to 500 tons per hour

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WILFLEY Centrifugal SAND PUMP
PATENTED
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Elimination of stuffing box has done away with many troubles common to centrifugal pumps.

Pump maintains extraordinary efficiency.

Wearing parts unusually heavy, insuring long life.

Cleaning out pump or changing wearing parts requires only a few minutes.

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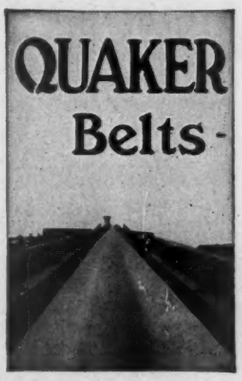

Always on the Job

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They are strong, but flexible; trough easily and are impervious to moisture and heat.

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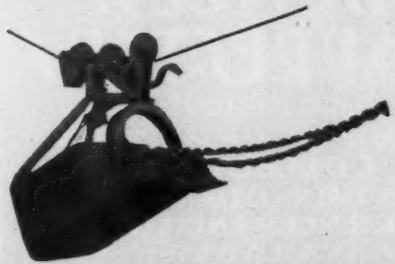

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SCHULTHESS ··Hydrators··

The Most Dynamite for Your Money

HERCOMITE 2 is nearest grade to	60% Extra L. F. or 40% to 50% Gelatins
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A powerful, cheap and safe substitute for dynamite and powder which greatly reduces blasting costs in open pit operations.

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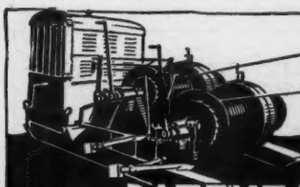

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"A MOUTHFUL AT EVERY BITE"

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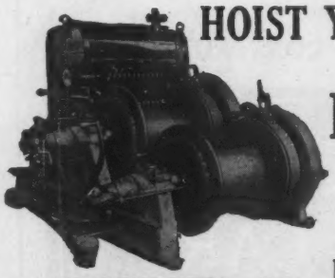

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Flory Builds Gasoline, Steam, Electric Hoists, Cableways, Carpullers, Dredging Machinery, Etc.
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FOR THE SUPPRESSION AND COLLECTION OF ALL FINE DRY DUSTS
OUR EXPERIENCED ENGINEERING SERVICE IS AVAILABLE
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Consult us on any phase of Dust Suppression and Collection for any industrial operation.

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Are the choice of the country's largest producers of Trap Rock, Granite, Limestone, Iron Ore, Copper and Cement Rock.

Ten Outstanding Features

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Write for "The Story of the Quarry"

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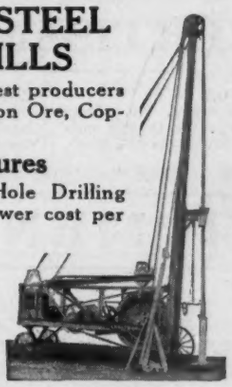
See Page 203 of 1927 Keystone Metal Quarry Catalog



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Screens from coarsest to the finest materials either wet or dry

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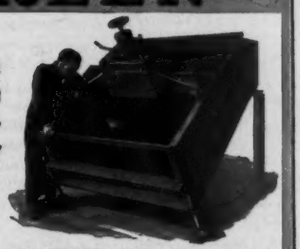

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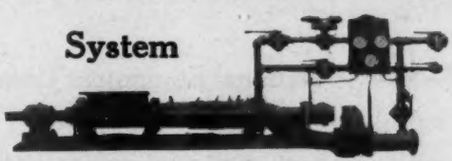

For conveying—elevating—distributing Pulverized Materials through pipe lines of extended length.

Cement—Raw Material—Flue Dust—Packer Spill —Gypsum—Lime, Etc.

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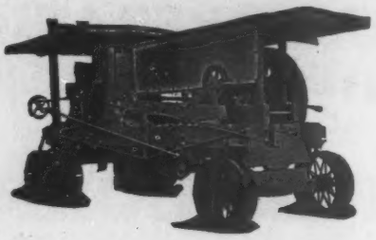

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1—100 KW GENERAL ELECTRIC STEAM TURBO GENERATOR SET.
1—Single Drum STEAM HOIST, Cylinder 8x12-inch. Drum 12x18-inch.
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1—45 ft. wide, 136 ft. long by 75 ft. high (4 floors).
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2—No. 70 BUCYRUS STEAM SHOVELS.
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1—ELEVATOR, 75-ft. centers. Elevator complete with tail pulley and take-up bearings with 150 "V" shape 9x12x16 steel buckets with reinforced edges, with 17-inch stitched canvas 6-ply belt.
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325—9x12x12-inch "V" shape ELEVATOR BUCKETS.
7—42x48-inch TRUMMER SCREENS.
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1—No. 5 Telsmith Gyratory Crusher.
1—No. 7 Williams Fine Grinder.
1—No. 7½-D Gates Gyratory Crusher.
1—18"x36" Farrell Jaw Crusher.
1—36"x48" Traylor Bull Dog Crusher.
1—No. 6 Austin Gyratory Crusher.
2—No. 5-K Gates Crushers.
1—Complete 400 Yard Gravel Plant.
1—Complete Small Stucco Plant.
1—6'x22" Hardinge Conical Ball Mill.
1—41-ton Baldwin Standard Gauge Locomotive.
2—Complete ¾-yd. Gas Cableway Outfits; 1 steam.
1—Sauerman 1-yd. Outfit, without power.
1—Sauerman 2-yd. Electric Outfit, complete.
1—New 200 H.P. G. E. Motor.
1—65' Center Bucket Elevator.
50—Steam and Electric Channelers.
1—33" Fuller Mill.
1—3'x30' Indirect Fired Dryer.
1—42" Gas Whitcomb Locomotive.
1—150' Matthew Gravity Conveyor.

Send us your inquiries and we will send you our offerings from our $15,000,000 Listing.

National Equipment Company
Bloomington, Indiana

FOR SALE

Two Barber-Greene gasoline power wagon loaders.

The Atlas Sand, Gravel & Stone Co.
50 State St., Hartford, Conn.

In stock 250—24" gauge 2-way Western and Austin dump cars, one and one and one-half yard capacity, in good serviceable second-hand condition. Also a number of new "V" shaped dump cars, 24" gauge: rails, new and relaying and all sorts of tracks supplies of all sections.

Park Row Bldg. New York City **M. K. FRANK** Union Trust Bldg. Pittsburgh, Pa.

CLASSIFIED ADVERTISEMENTS

USED EQUIPMENT

22 ton 4'8½" Heisler Geared Locomotive $1500.00
36 ton Shay Geared Locomotive..... 2250.00
62 ton American 6 Wheel Switcher..... 6500.00
75 ton Baldwin 6 Wheel Switcher..... 6000.00
¾ yd. N.W. Combination Crane and Shovel, Gasoline, Crawler—¾ dipper and 40 ft. Crane Boom with ¾ bucket 5000.00
1 yd. O&S Steam, Crawler Shovel, ASME boiler—like new..... 4500.00
¾ yd. Bucyrus 14-B Steam, Crawler, ASME—fine 3750.00
8 ton some very good overhauled 24" gauge Gasoline Locomotives.
Sauerman Dragline Cableways.
Bargains in R. R. Type Shovels.
120 H. P. Fairbanks Morse latest V. A. Oil Engine, run only 10 days..... 4750.00
50 H.P. G.E. motor with starter, A.C., 220 V., 1200 RPM. Guaranteed..... 260.00

MANY ATTRACTIVE OFFERINGS

ZELNICKER IN ST. LOUIS

Rails, Cars, Crushers, Oil Engines, Motors.
Send for Bulletin 364—It's interesting.

NEW
75 H. P. THOMAS
TWO-SPEED ELECTRIC
SLACKLINE CABLEWAY HOIST
Used Only Two Months

Will sell at an attractive discount or will rent on a monthly basis.

Thomas Elevator Co.
24 South Hoyne Avenue
Chicago, Ill.

FOR SALE

SPECIALS—NEW—NEVER USED

Allis-Chalmers 6'x36' Rotary Dryer, 7/16-in. plate, now unlined, complete, at our Newark shops.

Also 54"x36' Ruggles-Coles Class F-4 Direct Heat Dryer, complete with elaborate oil burning and storage equipment.

Jaw, Gyratory, Roll Crushers—all sizes.

Kilns, Dryers, direct and indirect, all sizes.

TUBE MILLS—3'x12", 4x16; 5x20; 5x22; 5'6" x16; 5'6"x20.

HARDINGE MILLS—3'x8"; 4½x16; 5x22; 6x 22; 8x30; 8x36; 8x48.

PULVERIZERS—2-, 3-, 4-, 5-roll, high and low side Raymond Mills, also Beater types; 33" to 42" Fuller Lehigh Mills, Griffin Mills.

SWING HAMMER MILLS—All sizes—Williams, Jeffrey, Gruendler, Pennsylvania.

Send us your inquiries
Send us a list of your surplus equipment

Consolidated Products Co., Inc.
15-16-17 Park Row N. Y. C. Barclay 0603
Shops and Yards at Newark, N. J., cover 5 acres

FOR SALE—A BARGAIN
9'x100' Vulcan Rotary Kiln
COMPLETE—GOOD AS NEW

EQUIPMENT SALES COMPANY - - - - Richmond, Virginia
R. W. STORRS, JR., Manager

MACHINERY FOR SALE

SPECIAL
One No. 6 Williams Universal Pulverizer.
One 4½'x16" Hardinge steel lined Mill.

ROTARY CRUSHERS
Three No. 00, Three No. 1, One No. 1½, One No. 2 Sturtevant Rotary Fine Crushers, One No. 0, One No. 1 Sturtevant Ring Roll Mills.

GYRATORY CRUSHERS
All sizes from No. 2 Reduction up to 12K.

JAW CRUSHERS
One 4"x8", Two 7"x10", Two 9"x15", One 6"x20", One 10"x15", One 10"x20", Two 12"x24", One 13"x30", One 15"x36", One 18"x36", One 24"x36", One 22"x50", One 36"x48", One 40"x42", One 60"x84".

CRUSHING ROLLS
One 8"x6", Two 14"x20", Two 16"x10", One 24"x12", Three 30"x10", Two 36"x16", Two 42"x16, and One 54"x24" Crushing Rolls.

DRYERS
One 3'x20', Three 4'x30', One 5'x40', Two 5½'x 40', One 6'x60', One 7'x60', and Two 8'x80' Direct Heat Rotary Dryers, One 5'x25', One 6'x30' Ruggles Coles type "A" and One 4'x 20' Ruggles Coles type "B" Double Shell Rotary Dryers, Three 6'x25' Louisville Dryers.

KILNS
One 4'x40', Two 6'x60', Two 6'x90', One 6'x 100', One 6'x120', One 7½'x80', Three 8'x 125'.

HARDINGE MILLS
One 4½', Two 6' and Two 8' Hardinge Mills.

SWING HAMMER AND TUBE MILLS
Fuller, Griffin and Raymond Mills, Screens, Air Separators, etc.

THE HEINEKEN ENGINEERING CORP.
117 Liberty St. New York City
Telephone Cortlandt 5130

MACHINERY FOR SALE CHEAP

at the plant, formerly the Fumers Clay Products Corp., Clarksville (Mercer County), Pa.

2—Cummer Dryers.
2—Hum-mer Electric Screens.
3—Weller Elevators.
1—Clarage Fan Co. (S. P. 50).

Pumps, Boilers, Engines, and numerous other items.

Will sell separately or in a lot

Apply M. C. CAULFIELD
Sharon, Pa.

RAILS New and Relay
ALL WEIGHTS AND SECTIONS
FROGS—SWITCHES—TIE PLATES
S. W. LINDHEIMER
38 S. Dearborn St. Chicago, Ill.

DRAGLINES
Class 24 Electric, 4 yd. capacity.
Class 14 Steam, 2 yd. capacity.

DUMP CARS
4—Western, 6 yd., standard gauge.
8—Western, 4 yd., 36 in. gauge.
12—Lakewood, 1½ yd., 24 in. gauge.

GASOLINE LOCOMOTIVES
1—Plymouth, 4 ton, 24 in. gauge.
1—Midwest, 4 ton, 24 in. gauge.

STONE SCREEN
1—Heavy Duty, 3 ft. by 12 ft. long, with A. C. motor.

CENTRIFUGAL PUMPS
8—Allis-Chalmers, 12 in., 3400 gal. per minute at 180 ft. head, direct connected to 200 h.p., 3 ph., 60 cy., 2200 v. motor.

THE U. G. I. CONTRACTING CO.
Attention: R. C. Stanhope, Jr.,
Supervisor of Equipment
U. G. I. Building Philadelphia, Pa.

FOR SALE
Complete Commercial Duntile Plant
In first class condition. Located New York. Ready to operate. Must be sold, immediately at a real bargain. Don't answer unless you mean business.

OOLITIC STONE ART WORKS
Bloomington, Indiana

CLASSIFIED ADVERTISEMENTS

POSITIONS WANTED—POSITIONS VACANT
Two cents a word. Set in six-point type. Minimum $1.00 each insertion, payable in advance.

INFORMATION
Box numbers in care of our office. An advertising inch is measured vertically in one column. Three columns, thirty inches to the page.

CLASSIFIED—Displayed or undisplayed. Rate per column inch, $4.00. Unless on contract basis, advertisements must be paid for in advance of insertion.

USED EQUIPMENT

REBUILT LOCOMOTIVES

72-ton American 6-wheel switcher, separate tender, 180 lb. steam. Eight duplicates.
54-ton Baldwin 6-wheel switcher, separate tender, 200 lb. steam; built 1913.
50-ton Baldwin 6-wheel switcher, separate tender; built 1907.
43-ton Baldwin 6-wheel switcher, separate tender, 180 lb. steam; built 1917.
35-ton Baldwin 4-wheel switcher, separate tender, 180 lb. steam; built 1921.
42-ton American 4-wheel saddle tank, 180 lb. steam; built 1910; Ohio boiler.
31-ton Baldwin 4-wheel saddle tank, 160 lb. steam; built 1914.
21-ton Porter 4-wheel saddle tank; built 1912. 36" gauge.
18-ton Porter 4-wheel saddle tank, built 1910-11, 36" gauge. 3 duplicates.

REBUILT DUMP CARS

20-yard all steel Western air dump, vertical cylinders. Ten of these.
12-yard steel underframe hand dumps. Seven of these.
6-yard steel underframe hand dumps. Eight of these.

REBUILT LOCOMOTIVE CRANES

20-ton Link-Belt 8-wheel, 2-line; built 1916.
15-ton Ohio 8-wheel, 2-line; built 1919.

BIRMINGHAM RAIL & LOCOMOTIVE COMPANY
Birmingham Alabama

For Sale

CRUSHERS—GYRATORY
No. 7½ Kennedy
No. 7½ McCully
No. 6 McCully
No. 6 Kennedy
No. 9-K Allis-Chalmers

ROTARY KILNS
2—8x125 ft.
1—9x100 ft.
1—7x100 ft.
1—6x70 ft.
1—7-5½x60 ft.

Equipment Sales Company
R. W. Storrs, Jr., Manager
RICHMOND VIRGINIA

New—Standard Make

1½ cu. yd. Steam and Electric

SHOVELS

At Greatly Reduced Prices

A two motor electric shovel equipped with 50 hp. hoist and swing motor, and 20 hp. crowd motor. High lift—heavy duty—factory guaranteed.

Also a new heavy duty, high lift steam shovel. Can be equipped with boom up to 32 feet in length.

Either machine recommended for severe operation requiring large output.

Terms to Meet Your Convenience

CHAS. F. COHEN
132-5 Cornell Ave. Elyria, Ohio

FOR SALE

Marion, Model 21, ¾ yd. Steam Shovel—Caterpillar. Good condition.

Low price for quick sale

STOCKBRIDGE STONE COMPANY
Stockbridge, Ga.

32 ton, American, 32-in. wheel centers, 175 lbs. pressure, air and steam brakes; completely overhauled.

75 ton, 21x26-in., 6-wheel switcher, piston valve, Walschaert valve gear, superheated; built Dec., 1922.

50 ton, saddle tank, new boiler, new cylinders, new tank, new tires.

17—16-yd. Western dump cars, rebuilt; new bodies, steel lined floors.

10—20-yd. Western dump cars, all steel, vertical air cylinders.

HAVE FORTY LOCOMOTIVES, OVERHAULED AND READY, 5 TO 100 TONS, CARS, SHOVELS, CRANES, RAIL, ETC.

ALSO
LOCOMOTIVE SPRINGS, MANUFACTURED AT OUR WORKS HERE

SOUTHERN IRON & EQUIPMENT COMPANY
(Est. 1889)
ATLANTA - - - - - GEORGIA

CRANES

Caterpillar Cranes

1—Type B ERIE Steam, with 40 ft. boom, ASME Boiler, Shop No. 2375, with 19-6 high lift shovel boom if desired.
1—McMyler No. 2 Steam, with 40 ft. boom, ASME Boiler, Shop No. 3394. Cap. 10 tons.

Locomotive Cranes

1—OHIO 30 ton Model F, with 50 ft. boom, bucket operating, ASME Boiler, Shop No. 3530.
1—Brown-Hoist, 25 ton, No. 4, Type C, with 50 foot boom, ASME Boiler, Shop No. 9461.

EQUIPMENT CORP. OF AMERICA
1419 Roanoke Bldg., Chicago, Ill.
Philadelphia, Pa., 619 Horn Bldg., 1601 Chestnut St.
Pittsburgh, Pa., 819 Empire Bldg.

RAILS
New and Relayers
New Track Accessories
25,000 TONS IN STOCK
QUALITY GUARANTEED
"1 TON or 1000"
L.B. FOSTER Co.
NEW YORK - PITTSBURGH - CHICAGO

CLASSIFIED ADVERTISEMENTS

USED EQUIPMENT

Crushers No. 12, 10, 9, 8, 7, 6, 5, 4
Roll Crushers
84x72, 36x60, 72x30, 18x30
60x84—Jaw Crushers—16x60
36x48—40x42—26x50—24x36—20x34—60x84
12x37—18x36—13x30—7x24—7x16—10x22
2—30 and 37 Kennedy Gearless Crushers.
DISC CRUSHERS, 48", 36", 24", 18"
3 Oil Engines 200 H. P., New
¾—1 AND 1½—2½-YD. CAT SHOVELS
5 Ton Crane 70' Span A C Motors
AIR COMP.—HOISTS—KILNS
DRAG LINES—LOCO. CRANES—MOTORS
Other BARGAINS—(Send us your inquiries)

Ross Power Equipment Co.
13 South Meridian St. Indianapolis, Ind.

GASOLINE SHOVELS

1—KOEHRING, Caterpillar, new 1926, 1-yd., HIGH LIFT, overhauled, like new.

1—OSGOOD HEAVY DUTY (1-yd.) Caterpillar, new 1927, 1-yd. dipper; HIGH LIFT; also 40 ft. crane boom if desired, like new.

STEAM SHOVELS

1—ERIE B-2 DREADNAUGHT, Caterpillar, new 1927, 1-yd., HIGH LIFT, perfect condition.

1—30-B BUCYRUS, Caterpillar, new 1926, 1⅛-yd. dipper; boom 22 ft., dipper handle 16 ft.; first class condition.

GREY STEEL PRODUCTS COMPANY
111 Broadway New York, N. Y.

FOR SALE

1—Williams No 7 Fine Pulverizer, used two months.
1—200 H.P. slip ring motor, 220 volts, 1200 R.P.M.; new.
1—50 H.P. Induction Motor, 220 volts, 900 R.P.M.
1—50 H.P. Induction Motor, 220 volts, 600 R.P.M.

Bedford Stone Products Company, Bedford, Ind.

UNIVERSAL CRUSHER COMPANY
Eastern Agents
All Steel Jaw Crushers. Also used equipment in crushing and power lines.

HOOPER-MOMBERGER CO.
90 West St., New York City Phone Rector 2919

BOILERS FOR SALE

One 100 H.P. and one 200 H.P. Erie City Horizontal Tubular boilers complete with Jones Automatic Stokers, feed pumps, blowers and breeching.

All equipment in good condition.

THE CARBORUNDUM COMPANY
Niagara Falls New York

USED EQUIPMENT WANTED

WANTED

100 self-dumping or drop-bottom buckets of from one to three yard capacity. Send complete information to

Box 156, care of ROCK PRODUCTS
542 So. Dearborn St. Chicago, Ill.

USED EQUIPMENT WANTED

WANTED

One or two large air compressors, steam driven. Send complete information to

Box 157, care of ROCK PRODUCTS
542 So. Dearborn St. Chicago, Ill.

WANT TO BUY

Sand and gravel washing, screening and conveying equipment, capacity about eight hundred tons per day, also a secondary or reducing crusher.

HARRY M. WAUGH
Bluefield West Virginia

BUSINESS OPPORTUNITIES

GYPSUM

Mining, Quarrying, Processing, Construction, and Research

The undersigned is available for consultation and service to the Gypsum Products Industry in connection with all problems relating to the production and use of gypsum plaster, stucco, wallboard, tile, etc. I have facilities for testing and research work, and a background of successful experience as a chemist and superintendent of gypsum plants.

Walter B. Lenhart
265 Quincy Ave., Long Beach, Cal.

FOR SALE

Trap rock. Twenty-five or fifty acres. No stripping. Over 30 million tons. Above water level. Water 40 ft. right up to the rock. Accessible to all ports on the Great Lakes. Might lease on a royalty for from 25 to 50 years.

M. T. YOUNG
4133 Woodward Ave. Detroit, Mich.

FOR SALE

Two deposits of limestone in northwest Florida—both large tonnage and high grade. Railroad runs through one and no great distance from other. Should interest cement manufacturers. Address

S. D. CRENSHAW
P. O. Box 667 Richmond, Va.

RACK-A-ROCK

We have a quantity of RACK-A-ROCK oil which we should be glad to sell; or would buy the absorbent sticks necessary to the use of this explosive. Any information on this subject greatly appreciated.

The Winnipeg Supply & Fuel Co., Ltd.
Stonewall, Manitoba, Canada.

POSITIONS VACANT

SALESMAN WANTED TO REPRESENT manufacturer calling on cement mills with a line of proven products for Cement Grinding. Address Box 158, care of Rock Products, 542 S. Dearborn St., Chicago, Ill.

POSITIONS WANTED

ENGINEER AND MANAGER, OR SUPERINtendent, age 40, married, 12 years experience in sand and gravel business as engineer and manager. A hustler. Can handle men, sell, maintain all classes of equipment, do all my own engineering and can get results by efficient, economical management. Will go anywhere, and am now available. Address Box 155, care of Rock Products, 542 S. Dearborn St., Chicago, Ill.

POSITION WANTED—CEMENT PLANT superintendent or large quarry operations. Have thorough knowledge of cement plant machinery and also large quarry operations. Am at present employed. Desire change on account climate. South or west preferred. Give best of references. Address Box 154, care of Rock Products, 542 S. Dearborn St., Chicago, Ill.

SUPERINTENDENT, WITH LONG EXPERIence in the crushed stone and gravel industry, desires change. Familiar with heavy and efficient operation steam or electric, drilling, blasting, milling. Location anywhere. Excellent references. Address Box 152, care of Rock Products, 542 South Dearborn Street, Chicago, Ill.

QUARRY SUPERINTENDENT—CAPABLE of handling all machinery or build plants. Am also millwright and have had twenty years experience in cement business and four years in the mining of rock under state inspection. Address Box 151, care of Rock Products, 542 South Dearborn Street, Chicago, Ill.

ENGINEER, EXPERIENCED IN DESIGN, construction and operation; cement, lime, crushing, pulverizing, conveying, ore handling and treating plants. Considerable experience in other industrial manufacturing lines. Address Box 2253, care of Rock Products, 542 South Dearborn St., Chicago, Ill.

To Employers Who Advertise for Men:

These advertisements of "positions vacant" and "positions wanted" are all bona fide, and in a large majority of cases from firms and men known personally to one or more of the staff of Rock Products.

It sometimes happens, when an employer receives a number of applications for a position open, he neglects to acknowledge some of them.

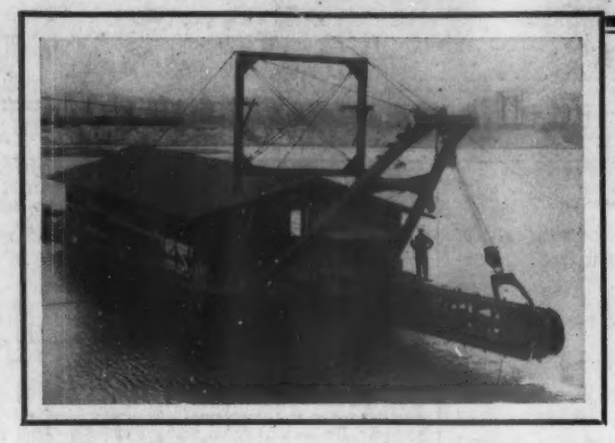
As a matter of courtesy and good will in our relatively small and closely knit industries, the applicant should receive some acknowledgement. If the employer does not wish to disclose his identity he may make the acknowledgement on plain letter paper.

The applicant is, in practically every instance, a bona fide operating man in the rock products industry. Otherwise he would never see a copy of Rock Products, as it has no circulation outside of those definitely interested in the production of these commodities.

Unless the applicant receives some acknowledgement he does not know that his application forwarded through Rock Products has been properly taken care of or not; and a very good candidate for some future employment is discouraged from answering these blind advertisements, to the detriment of both employer and employe.

Therefore, for the good of all our industry, employers and employes, please treat such applications with the same courtesy you would any other business communication.

—The Publishers.



Cutting Down Your Costs–

This EAGLE SWINTEK SUCTION SCREEN NOZZLE LADDER is cutting down the costs for the Des Moines Sand and Fuel Company. They say, "Since we are operating close to the business district of the city on land which is quite valuable, this machine plays a very important part in cutting down our costs." Because—the EAGLE SWINTEK is cutting through a closely compacted layer agitating the deposit and increasing the capacity so that they are actually repumping their deposit and reclaiming to an additional depth of 15 feet.

Gone are delays to dislodge rocks from a clogged line; gone are worries of decreased pumping due to a compact deposit where pumping is a problem because there is the cutting and the agitation of the screen chain.

Can you afford not to investigate this SCREEN LADDER? They are in operation throughout the country. Let us advise you of the nearest installation and send you a list of users in your vicinity so that you may investigate for yourself. With an EAGLE SWINTEK you, too, can be cutting down your costs.

EAGLE IRON WORKS DES MOINES IOWA

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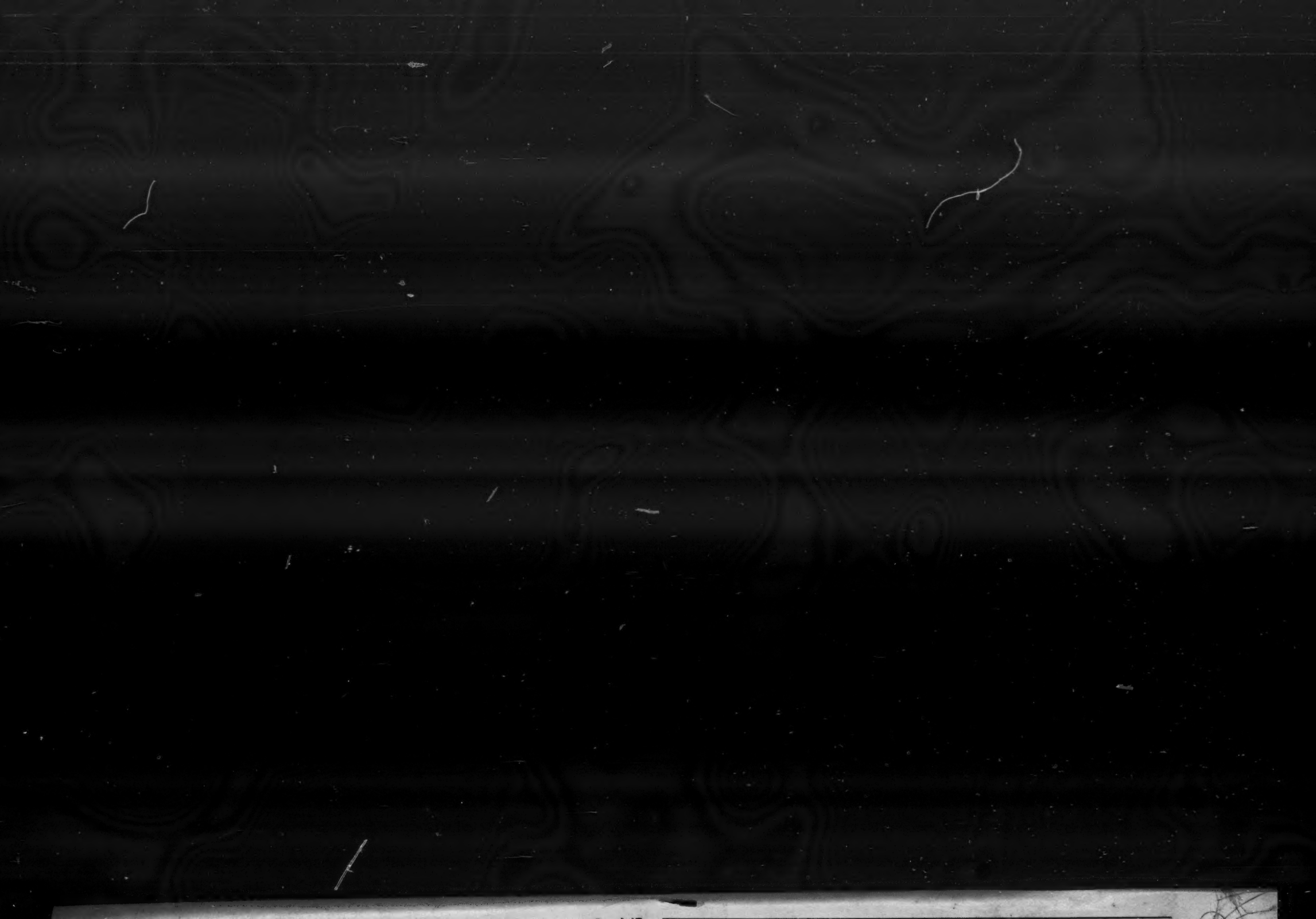
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